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Triboelectric nanogenerators as new energy technology for self-powered systems and as active mechanical and chemical sensors

DOI: 10.1021/nn404614z
ACS Nano, 2013, 7, 9533-57.

Source: <https://exaly.com/paper-pdf/55085831/citation-report.pdf>

Version: 2024-04-17

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#	Paper	IF	Citations
1972	Theoretical Study of Triboelectric-Potential Gated/Driven MetalOxideSemiconductor Field-Effect Transistor.		
1971	Piezoelectric-Induced Triboelectric Hybrid Nanogenerators Based on the ZnO Nanowire Layer Decorated on the Au/polydimethylsiloxaneAl Structure for Enhanced Triboelectric Performance.		
1970	Exciting Times for Nano. <i>ACS Nano</i> , 2013 , 7, 10437-10439	16.7	1
1969	Enhancing Output Power of Cylindrical Triboelectric Nanogenerators by Segmentation Design and Multilayer Integration. 2014 , 24, 6684-6690		71
1968	A Three Dimensional Multi-Layered Sliding Triboelectric Nanogenerator. 2014 , 4, 1301592		88
1967	Grating-structured freestanding triboelectric-layer nanogenerator for harvesting mechanical energy at 85% total conversion efficiency. 2014 , 26, 6599-607		337
1966	Direct-Current Triboelectric Generator. 2014 , 24, 3745-3750		116
1965	Triboelectric Nanogenerators as a Self-Powered Motion Tracking System. 2014 , 24, 5059-5066		64
1964	Excitation of energy harvesters using stick-slip motion. 2014 , 23, 085024		14
1963	Hybrid energy cell for simultaneously harvesting wind, solar, and chemical energies. 2014 , 7, 1631-1639		97
1962	Complementary power output characteristics of electromagnetic generators and triboelectric generators. 2014 , 25, 135402		56
1961	Multi-layered disk triboelectric nanogenerator for harvesting hydropower. 2014 , 6, 129-136		86
1960	Theoretical comparison, equivalent transformation, and conjunction operations of electromagnetic induction generator and triboelectric nanogenerator for harvesting mechanical energy. 2014 , 26, 3580-91		350
1959	Harvesting energy from automobile brake in contact and non-contact mode by conjunction of triboelectrification and electrostatic-induction processes. 2014 , 6, 59-65		75
1958	Applicability of triboelectric generator over a wide range of temperature. 2014 , 4, 150-156		98
1957	A power-transformed-and-managed triboelectric nanogenerator and its applications in a self-powered wireless sensing node. 2014 , 25, 225402		70
1956	A high performance triboelectric generator for harvesting low frequency ambient vibration energy. 2014 ,		2

1955	Topographically-designed triboelectric nanogenerator via block copolymer self-assembly. 2014 , 14, 7031-8	258
1954	Friction, tribochemistry and triboelectricity: recent progress and perspectives. 2014 , 4, 64280-64298	89
1953	Triboelectric nanogenerators as new energy technology and self-powered sensors - principles, problems and perspectives. 2014 , 176, 447-58	890
1952	Self-powered triboelectric velocity sensor for dual-mode sensing of rectified linear and rotary motions. 2014 , 10, 305-312	65
1951	An electrospun nanowire-based triboelectric nanogenerator and its application in a fully self-powered UV detector. 2014 , 6, 7842-6	167
1950	Flexible interdigital-electrodes-based triboelectric generators for harvesting sliding and rotating mechanical energy. 2014 , 2, 19427-19434	42
1949	Stretchable energy-harvesting tactile electronic skin capable of differentiating multiple mechanical stimuli modes. 2014 , 26, 7324-32	392
1948	Harvesting broadband kinetic impact energy from mechanical triggering/vibration and water waves. <i>ACS Nano</i> , 2014 , 8, 7405-12	16.7 150
1947	Woven structured triboelectric nanogenerator for wearable devices. 2014 , 6, 14695-701	255
1946	Case-encapsulated triboelectric nanogenerator for harvesting energy from reciprocating sliding motion. <i>ACS Nano</i> , 2014 , 8, 3836-42	16.7 119
1945	Electric flora. 2014 ,	
1944	Hybrid triboelectric nanogenerator for harvesting water wave energy and as a self-powered distress signal emitter. 2014 , 9, 186-195	232
1943	Contact electrification field-effect transistor. <i>ACS Nano</i> , 2014 , 8, 8702-9	16.7 89
1942	Cover-sheet-based nanogenerator for charging mobile electronics using low-frequency body motion/vibration. 2014 , 9, 121-127	81
1941	Self-powered, ultrasensitive, flexible tactile sensors based on contact electrification. 2014 , 14, 3208-13	352
1940	Single-friction-surface triboelectric generator with human body conduit. 2014 , 104, 103904	36
1939	Highly transparent and flexible triboelectric nanogenerators: performance improvements and fundamental mechanisms. 2014 , 2, 13219-13225	115
1938	Noncontact free-rotating disk triboelectric nanogenerator as a sustainable energy harvester and self-powered mechanical sensor. 2014 , 6, 3031-8	168

1937	Dual-mode triboelectric nanogenerator for harvesting water energy and as a self-powered ethanol nanosensor. <i>ACS Nano</i> , 2014 , 8, 6440-8	16.7	194
1936	Transparent paper-based triboelectric nanogenerator as a page mark and anti-theft sensor. 2014 , 7, 1215-1223		71
1935	Rotating-Disk-Based Direct-Current Triboelectric Nanogenerator. 2014 , 4, 1301798		146
1934	Robust thin-film generator based on segmented contact-electrification for harvesting wind energy. 2014 , 6, 8011-6		43
1933	Self-powered velocity and trajectory tracking sensor array made of planar triboelectric nanogenerator pixels. 2014 , 9, 325-333		84
1932	Freestanding triboelectric-layer-based nanogenerators for harvesting energy from a moving object or human motion in contact and non-contact modes. 2014 , 26, 2818-24		549
1931	Floating Oscillator-Embedded Triboelectric Generator for Versatile Mechanical Energy Harvesting. 2015 , 5, 16409		30
1930	Interface-Free Area-Scalable Self-Powered Electroluminescent System Driven by Triboelectric Generator. 2015 , 5, 13658		16
1929	Liquid-Metal Electrode for High-Performance Triboelectric Nanogenerator at an Instantaneous Energy Conversion Efficiency of 70.6%. 2015 , 25, 3718-3725		333
1928	A flexible, stretchable and shape-adaptive approach for versatile energy conversion and self-powered biomedical monitoring. 2015 , 27, 3817-24		199
1927	Performance Enhancement of Electronic and Energy Devices via Block Copolymer Self-Assembly. 2015 , 27, 3982-98		79
1926	A Streaming Potential/Current-Based Microfluidic Direct Current Generator for Self-Powered Nanosystems. 2015 , 27, 6482-7		71
1925	Significant Enhancement of Triboelectric Charge Density by Fluorinated Surface Modification in Nanoscale for Converting Mechanical Energy. 2015 , 25, 5691-5697		150
1924	Self-Recovering Triboelectric Nanogenerator as Active Multifunctional Sensors. 2015 , 25, 6489-6494		54
1923	Control of Skin Potential by Triboelectrification with Ferroelectric Polymers. 2015 , 27, 5553-8		75
1922	Recent Progress on Flexible Triboelectric Nanogenerators for SelfPowered Electronics. 2015 , 8, 2327-44		127
1921	Foldable and portable triboelectric-electromagnetic generator for scavenging motion energy and as a sensitive gas flow sensor for detecting breath personality. 2015 , 26, 475402		13
1920	Recent Advancements in Nanogenerators for Energy Harvesting. 2015 , 11, 5611-28		62

1919	Flexible, Stretchable and Wearable Multifunctional Sensor Array as Artificial Electronic Skin for Static and Dynamic Strain Mapping. 2015 , 1, 1500142	177
1918	Sequential Infiltration Synthesis of Doped Polymer Films with Tunable Electrical Properties for Efficient Triboelectric Nanogenerator Development. 2015 , 27, 4938-44	124
1917	A Flexible Fiber-Based Supercapacitor-Triboelectric-Nanogenerator Power System for Wearable Electronics. 2015 , 27, 4830-6	276
1916	Simplified Process for Manufacturing Macroscale Patterns to Enhance Voltage Generation by a Triboelectric Generator. 2015 , 8, 12729-12740	10
1915	Using the gravitational energy of water to generate power by separation of charge at interfaces. 2015 , 6, 3347-3353	54
1914	A tactile sensor translating texture and sliding motion information into electrical pulses. 2015 , 7, 10801-6	13
1913	A self-charging power unit by integration of a textile triboelectric nanogenerator and a flexible lithium-ion battery for wearable electronics. 2015 , 27, 2472-8	530
1912	An ultrarobust high-performance triboelectric nanogenerator based on charge replenishment. <i>ACS Nano</i> , 2015 , 9, 5577-84	16.7 110
1911	Flexible triboelectric nanogenerator from micro-nano structured polydimethylsiloxane. 2015 , 31, 434-438	14
1910	Base-treated polydimethylsiloxane surfaces as enhanced triboelectric nanogenerators. 2015 , 15, 523-529	68
1909	A cylindrical triboelectric energy harvester for capsule endoscopes. 2015 ,	
1908	A novel discharge system based on jagged electrodes with controllable spacing. 2015 ,	
1907	Teflon coated thread-shaped contact electrification fibre. 2015 , 10, 318-320	1
1906	Integration of micro-supercapacitors with triboelectric nanogenerators for a flexible self-charging power unit. 2015 , 8, 3934-3943	128
1905	Jagged discharge electrodes powered by triboelectric generator. 2015 , 10, 537-540	2
1904	A flexible and transparent graphene based triboelectric nanogenerator. 2015 ,	
1903	Ultra low cost triboelectric energy harvesting solutions for embedded sensor systems. 2015 ,	2
1902	Vibro-Impact Type Triboelectric Energy Harvester for Large Amplitude and Wideband Applications. 2015 , 660, 012051	

1901	Wearable electrode-free triboelectric generator for harvesting biomechanical energy. 2015 , 12, 19-25	107
1900	Spiral-interdigital-electrode-based multifunctional device: Dual-functional triboelectric generator and dual-functional self-powered sensor. 2015 , 12, 626-635	36
1899	Optical and wetting properties of nanostructured fluorinated ethylene propylene changed by mechanical deformation and its application in triboelectric nanogenerators. 2015 , 2, 015302	9
1898	Fully enclosed bearing-structured self-powered rotation sensor based on electrification at rolling interfaces for multi-tasking motion measurement. 2015 , 12, 606-611	38
1897	Triboelectric effect as a new strategy for sealing and controlling the flow in paper-based devices. 2015 , 15, 1651-5	38
1896	Ultrasensitive self-powered pressure sensing system. 2015 , 2, 28-36	66
1895	Recent progress in piezoelectric nanogenerators as a sustainable power source in self-powered systems and active sensors. 2015 , 14, 3-14	259
1894	Hybridized electromagnetic-triboelectric nanogenerator for scavenging biomechanical energy for sustainably powering wearable electronics. <i>ACS Nano</i> , 2015 , 9, 3521-9	16.7 190
1893	Robust triboelectric nanogenerator based on rolling electrification and electrostatic induction at an instantaneous energy conversion efficiency of ~ 55%. <i>ACS Nano</i> , 2015 , 9, 922-30	16.7 173
1892	Self-Powered Trace Memorization by Conjunction of Contact-Electrification and Ferroelectricity. 2015 , 25, 739-747	59
1891	Triboelectrification induced UV emission from plasmon discharge. 2015 , 8, 219-226	30
1890	Theoretical systems of triboelectric nanogenerators. 2015 , 14, 161-192	594
1889	Active micro-actuators for optical modulation based on a planar sliding triboelectric nanogenerator. 2015 , 27, 719-26	75
1888	Magnetic-assisted triboelectric nanogenerators as self-powered visualized omnidirectional tilt sensing system. 2014 , 4, 4811	82
1887	Networks of triboelectric nanogenerators for harvesting water wave energy: a potential approach toward blue energy. <i>ACS Nano</i> , 2015 , 9, 3324-31	16.7 419
1886	Flow-driven triboelectric generator for directly powering a wireless sensor node. 2015 , 27, 240-8	131
1885	A motion- and sound-activated, 3D-printed, chalcogenide-based triboelectric nanogenerator. 2015 , 27, 2367-76	72
1884	Piezoelectric-driven self-charging supercapacitor power cell. <i>ACS Nano</i> , 2015 , 9, 4337-45	16.7 170

1883	Coplanar induction enabled by asymmetric permittivity of dielectric materials for mechanical energy conversion. 2015 , 7, 6025-9		9
1882	A flexible high-sensitivity piezoresistive sensor comprising a Au nanoribbon-coated polymer sponge. 2015 , 3, 9247-9252		44
1881	A highly sensitive, low-cost, wearable pressure sensor based on conductive hydrogel spheres. 2015 , 7, 14766-73		105
1880	Self-Powered Triboelectric Nanosensor with Poly(tetrafluoroethylene) Nanoparticle Arrays for Dopamine Detection. <i>ACS Nano</i> , 2015 , 9, 8376-83	16.7	147
1879	Triboelectric Charging at the Nanostructured Solid/Liquid Interface for Area-Scalable Wave Energy Conversion and Its Use in Corrosion Protection. <i>ACS Nano</i> , 2015 , 9, 7671-7	16.7	83
1878	Assessment of MEMS energy harvester for medical applications. 2015 ,		2
1877	PEDOT as a Flexible Organic Electrode for a Thin Film Acoustic Energy Harvester. 2015 , 7, 16279-86		23
1876	Largely Improving the Robustness and Lifetime of Triboelectric Nanogenerators through Automatic Transition between Contact and Noncontact Working States. <i>ACS Nano</i> , 2015 , 9, 7479-87	16.7	73
1875	Implantable Self-Powered Low-Level Laser Cure System for Mouse Embryonic Osteoblasts' Proliferation and Differentiation. <i>ACS Nano</i> , 2015 , 9, 7867-73	16.7	110
1874	Progress in triboelectric nanogenerators as a new energy technology and self-powered sensors. 2015 , 8, 2250-2282		1326
1873	High sensitivity wrist-worn pulse active sensor made from tellurium dioxide microwires. 2015 , 14, 102-110		25
1872	Flexible piezoelectric energy nanogenerator based on ZnO nanotubes hosted in a polycarbonate membrane. 2015 , 13, 474-481		66
1871	Theoretical Study of Rotary Freestanding Triboelectric Nanogenerators. 2015 , 25, 2928-2938		102
1870	Paper-Based ZnO Nanogenerator Using Contact Electrification and Piezoelectric Effects. 2015 , 24, 519-521		13
1869	Triboelectric-pyroelectric-piezoelectric hybrid cell for high-efficiency energy-harvesting and self-powered sensing. 2015 , 27, 2340-7		331
1868	Broadband vibration energy harvesting using triboelectric mechanism. 2015 ,		
1867	A conversation with Prof. Zhong Lin Wang, energy harvester. <i>ACS Nano</i> , 2015 , 9, 2221-6	16.7	6
1866	Rotating-disk-based hybridized electromagnetic-triboelectric nanogenerator for scavenging biomechanical energy as a mobile power source. 2015 , 13, 771-780		125

1865	Motion-driven electrochromic reactions for self-powered smart window system. <i>ACS Nano</i> , 2015 , 9, 4757-4767	129
1864	Triboelectrification based active sensor for polymer distinguishing. 2015 ,	3
1863	Stretchable-Rubber-Based Triboelectric Nanogenerator and Its Application as Self-Powered Body Motion Sensors. 2015 , 25, 3688-3696	261
1862	High performance sound driven triboelectric nanogenerator for harvesting noise energy. 2015 , 15, 321-328	93
1861	High-performance flexible lead-free nanocomposite piezoelectric nanogenerator for biomechanical energy harvesting and storage. 2015 , 15, 177-185	156
1860	Standards and figure-of-merits for quantifying the performance of triboelectric nanogenerators. 2015 , 6, 8376	470
1859	Impact of contact pressure on output voltage of triboelectric nanogenerator based on deformation of interfacial structures. 2015 , 17, 63-71	88
1858	Self-powered transparent flexible graphene microheaters. 2015 , 17, 356-365	33
1857	Folded Elastic Strip-Based Triboelectric Nanogenerator for Harvesting Human Motion Energy for Multiple Applications. 2015 , 7, 20469-76	38
1856	Self-powered flexible pressure sensors with vertically well-aligned piezoelectric nanowire arrays for monitoring vital signs. 2015 , 3, 11806-11814	141
1855	Self-powered electrochemical water treatment system for sterilization and algae removal using water wave energy. 2015 , 18, 81-88	55
1854	Leveraging ZnO morphologies in piezoelectric composites for mechanical energy harvesting. 2015 , 18, 212-221	29
1853	Self-Powered Triboelectric Nanosensor for Microfluidics and Cavity-Confined Solution Chemistry. <i>ACS Nano</i> , 2015 , 9, 11056-63	16.7 86
1852	Automatic Mode Transition Enabled Robust Triboelectric Nanogenerators. <i>ACS Nano</i> , 2015 , 9, 12334-43	16.7 94
1851	A super-flexible and lightweight membrane for energy harvesting. 2015 ,	1
1850	A high-efficiency transparent electrification-based generator for harvesting droplet energy. 2015 ,	5
1849	Cylindrical spiral triboelectric nanogenerator. 2015 , 8, 3197-3204	20
1848	Mechanisms for Fiber-based Nanogenerators. 2015 , 487-511	

1847	Two-dimensional rotary triboelectric nanogenerator as a portable and wearable power source for electronics. 2015 , 17, 10-16		65
1846	Highly Transparent and Flexible Triboelectric Nanogenerators with Subwavelength-Architected Polydimethylsiloxane by a Nanoporous Anodic Aluminum Oxide Template. 2015 , 7, 20520-9		73
1845	Triboelectric Nanogenerators as a Self-Powered 3D Acceleration Sensor. 2015 , 7, 19076-82		110
1844	Self-powered thin-film motion vector sensor. 2015 , 6, 8031		100
1843	Wearable and Implantable Mechanical Energy Harvesters for Self-Powered Biomedical Systems. <i>ACS Nano</i> , 2015 , 9, 7742-5	16.7	104
1842	A high performance triboelectric nanogenerator for self-powered non-volatile ferroelectric transistor memory. 2015 , 7, 17306-11		36
1841	Elasto-Aerodynamics-Driven Triboelectric Nanogenerator for Scavenging Air-Flow Energy. <i>ACS Nano</i> , 2015 , 9, 9554-63	16.7	142
1840	Hybrid electromagnetic-triboelectric nanogenerator for harvesting vibration energy. 2015 , 8, 3272-3280		92
1839	Shape memory polymer-based self-healing triboelectric nanogenerator. 2015 , 8, 3605-3613		166
1838	Mechanical strain induced wetting transitions between anisotropic and isotropic on polydimethylsiloxane (PDMS) films patterned by optical discs. 2015 , 356, 102-109		11
1837	A contact-key triboelectric nanogenerator: Theoretical and experimental study on motion speed influence. 2015 , 18, 283-292		14
1836	Self-powered flexible inorganic electronic system. 2015 , 14, 111-125		94
1835	Self-powered water splitting using flowing kinetic energy. 2015 , 27, 272-6		160
1834	Environmental effects on nanogenerators. 2015 , 14, 49-61		126
1833	Mimosa-inspired design of a flexible pressure sensor with touch sensitivity. 2015 , 11, 1886-91		240
1832	Transparent flexible stretchable piezoelectric and triboelectric nanogenerators for powering portable electronics. 2015 , 14, 139-160		166
1831	Single-electrode-based rotary triboelectric nanogenerator and its applications as self-powered contact area and eccentric angle sensors. 2015 , 11, 323-332		63
1830	Hierarchical TiO ₂ nanowire/graphite fiber photoelectrocatalysis setup powered by a wind-driven nanogenerator: A highly efficient photoelectrocatalytic device entirely based on renewable energy. 2015 , 11, 19-27		92

1829	Triboelectric nanogenerators as self-powered active sensors. 2015 , 11, 436-462	505
1828	Facile fabrication and characterization of arch-shaped triboelectric nanogenerator with a graphite top electrode. 2015 , 212, 401-405	13
1827	High performance triboelectric nanogenerators based on large-scale mass-fabrication technologies. 2015 , 11, 304-322	149
1826	A transparent flexible thin-film triboelectric nanogenerator for scalable electricity generation. 2016 , 12, 396	1
1825	A Self-Powered Triboelectric Nanosensor for PH Detection. 2016 , 2016, 1-6	6
1824	Self-powered In-plane Accelerometer Using Triboelectric Mechanism. 2016 , 773, 012107	2
1823	Stimulating Acrylic Elastomers by a Triboelectric Nanogenerator Toward Self-Powered Electronic Skin and Artificial Muscle. 2016 , 26, 4906-4913	73
1822	Flexible Nanogenerators for Energy Harvesting and Self-Powered Electronics. 2016 , 28, 4283-305	1065
1821	Lightweight Triboelectric Nanogenerator for Energy Harvesting and Sensing Tiny Mechanical Motion. 2016 , 26, 4370-4376	49
1820	Graphene-Based Flexible and Stretchable Electronics. 2016 , 28, 4184-202	406
1819	Lawn Structured Triboelectric Nanogenerators for Scavenging Sweeping Wind Energy on Rooftops. 2016 , 28, 1650-6	269
1818	Polymer-Metal Schottky Contact with Direct-Current Outputs. 2016 , 28, 1461-6	67
1817	Dynamic Triboelectrification-Induced Electroluminescence and its Use in Visualized Sensing. 2016 , 28, 6656-64	107
1816	Fully Packaged Self-Powered Triboelectric Pressure Sensor Using Hemispheres-Array. 2016 , 6, 1502566	162
1815	A Triboelectric-Based Artificial Basilar Membrane to Mimic Cochlear Tonotopy. 2016 , 5, 2481-2487	35
1814	Triboelectric-Potential-Regulated Charge Transport Through p-n Junctions for Area-Scalable Conversion of Mechanical Energy. 2016 , 28, 668-76	19
1813	MoS ₂ Tribotronic Transistor for Smart Tactile Switch. 2016 , 26, 2104-2109	73
1812	Self-Powered Electrochemistry for the Oxidation of Organic Molecules by a Cross-Linked Triboelectric Nanogenerator. 2016 , 28, 5188-94	24

1811	A Water-Proof TriboelectricElectromagnetic Hybrid Generator for Energy Harvesting in Harsh Environments. 2016 , 6, 1501593	193
1810	Piezoelectric and Triboelectric Dual Effects in Mechanical-Energy Harvesting Using BaTiO/Polydimethylsiloxane Composite Film. 2016 , 8, 34335-34341	136
1809	Stretchable Triboelectric Fiber for Self-powered Kinematic Sensing Textile. 2016 , 6, 35153	82
1808	Study of Triboelectric Micromechanism for Three Dimensional Energy Harvesting. 2016 , 773, 012069	
1807	A Low Input Current and Wide Conversion Ratio Buck Regulator with 75% Efficiency for High-Voltage Triboelectric Nanogenerators. 2016 , 6, 19246	14
1806	Honeycomb-like nanofiber based triboelectric nanogenerator using self-assembled electrospun poly(vinylidene fluoride-co-trifluoroethylene) nanofibers. 2016 , 108, 143901	29
1805	Stress Induced Mechano-electrical Writing-Reading of Polymer Film Powered by Contact Electrification Mechanism. 2016 , 6, 19514	11
1804	Charge collection kinetics on ferroelectric polymer surface using charge gradient microscopy. 2016 , 6, 25087	13
1803	Effective energy harvesting from a single electrode based triboelectric nanogenerator. 2016 , 6, 38835	38
1802	Highly compressible solid-state supercapacitor with folded paper-based electrode. 2016 ,	
1801	Model of the triboelectric generator. 2016 ,	
1800	Enhanced triboelectrification of the polydimethylsiloxane surface by ultraviolet irradiation. 2016 , 108, 133901	24
1799	Theoretical and numerical analysis of triboelectric nanogenerators for self-powered sensors. 2016 ,	2
1798	Porous polymer composite membrane based nanogenerator: A realization of self-powered wireless green energy source for smart electronics applications. 2016 , 120, 174501	35
1797	Triboelectric energy harvester with an ultra-thin tribo-dielectric layer by initiated CVD and investigation of underlying physics in the triboelectricity. 2016 ,	1
1796	Nanoporous-Gold-Based Hybrid Cantilevered Actuator Dealloyed and Driven by A Modified Rotary Triboelectric Nanogenerator. 2016 , 6, 24092	15
1795	Biodegradable triboelectric nanogenerator as a life-time designed implantable power source. 2016 , 2, e1501478	307
1794	Triboelectric liquid volume sensor for self-powered lab-on-chip applications. 2016 , 23, 80-88	87

1793	Hybrid energy harvester with simultaneous triboelectric and electromagnetic generation from an embedded floating oscillator in a single package. 2016 , 23, 50-59		66
1792	Human Interactive Triboelectric Nanogenerator as a Self-Powered Smart Seat. 2016 , 8, 9692-9		51
1791	. 2016 , 25, 533-541		12
1790	Force-pad made from contact-electrification poly(ethylene oxide)/InSb field-effect transistor. 2016 , 22, 468-474		22
1789	A Flexible and Transparent Graphene-Based Triboelectric Nanogenerator. 2016 , 15, 435-441		31
1788	Flexible Pb(Zr _{0.52} Ti _{0.48})O ₃ Films for a Hybrid Piezoelectric-Pyroelectric Nanogenerator under Harsh Environments. 2016 , 8, 6504-11		65
1787	Hybrid energy harvester based on piezoelectric and triboelectric effects. 2016 ,		4
1786	Rolling Friction Enhanced Free-Standing Triboelectric Nanogenerators and their Applications in Self-Powered Electrochemical Recovery Systems. 2016 , 26, 1054-1062		74
1785	Controlled synthesis of Se-supported Au/Pd nanoparticles with photo-assisted electrocatalytic activity and their application in self-powered sensing systems. 2016 , 22, 564-571		33
1784	Paper-Based Triboelectric Nanogenerators Made of Stretchable Interlocking Kirigami Patterns. <i>ACS Nano</i> , 2016 , 10, 4652-9	16.7	160
1783	Wearable Self-Charging Power Textile Based on Flexible Yarn Supercapacitors and Fabric Nanogenerators. 2016 , 28, 98-105		608
1782	Harvesting Low-Frequency (. <i>ACS Nano</i> , 2016 , 10, 4797-805	16.7	419
1781	Multilayered electret films based triboelectric nanogenerator. 2016 , 9, 1442-1451		109
1780	Linear-grating hybridized electromagnetic-triboelectric nanogenerator for sustainably powering portable electronics. 2016 , 9, 974-984		35
1779	A study of kinetic energy harvesting for biomedical application in the head area. 2016 , 22, 1535-1547		8
1778	Development of multifunctional fiber reinforced polymer composites through ZnO nanowire arrays. 2016 ,		2
1777	Triboelectrification. 2016 , 1-19		8
1776	Self-powered Sensing for Human-Machine Interface. 2016 , 401-429		1

1775	Triboelectric Nanogenerator: Freestanding Triboelectric-Layer Mode. 2016 , 109-153	8
1774	Figure-of-Merits for Quantifying Triboelectric Nanogenerators. 2016 , 185-204	2
1773	Self-powered electro-coagulation system driven by a wind energy harvesting triboelectric nanogenerator for decentralized water treatment. 2016 , 28, 288-295	46
1772	Enhanced triboelectric charge through a facile hydrothermal treatment of electrode. 2016 , 16, 1364-1368	4
1771	Liquid-Solid contact triboelectrification and its use in self-powered nanosensor for detecting organics in water. 2016 , 30, 321-329	55
1770	Energy Harvesters for Wearable and Stretchable Electronics: From Flexibility to Stretchability. 2016 , 28, 9881-9919	309
1769	Electric Eel-Skin-Inspired Mechanically Durable and Super-Stretchable Nanogenerator for Deformable Power Source and Fully Autonomous Conformable Electronic-Skin Applications. 2016 , 28, 10024-10032	212
1768	Wind energy and blue energy harvesting based on magnetic-assisted noncontact triboelectric nanogenerator. 2016 , 30, 36-42	85
1767	Robust design of unearthed single-electrode TENG from three-dimensionally hybridized copper/polydimethylsiloxane film. 2016 , 30, 155-161	34
1766	Triboelectricity Generation from Vertically Aligned Carbon Nanotube Arrays. 2016 , 8, 27454-27457	18
1765	High performance triboelectric nanogenerators with aligned carbon nanotubes. 2016 , 8, 18489-18494	75
1764	3D spacer fabric based multifunctional triboelectric nanogenerator with great feasibility for mechanized large-scale production. 2016 , 27, 439-446	80
1763	A Shared-Electrode-Based Hybridized Electromagnetic-Triboelectric Nanogenerator. 2016 , 8, 19573-8	41
1762	Structural dependence of the transferred charge density in triboelectric nanogenerators: analytical and numerical study. 2016 , 15, 1593-1597	0
1761	Conducting polymer PPy nanowire-based triboelectric nanogenerator and its application for self-powered electrochemical cathodic protection. 2016 , 7, 6477-6483	61
1760	A Stretchable Nanogenerator with Electric/Light Dual-Mode Energy Conversion. 2016 , 6, 1600829	62
1759	Nanopillar Arrayed Triboelectric Nanogenerator as a Self-Powered Sensitive Sensor for a Sleep Monitoring System. <i>ACS Nano</i> , 2016 , 10, 8097-103	16.7 99
1758	High-performance triboelectric nanogenerators with artificially well-tailored interlocked interfaces. 2016 , 27, 595-601	45

1757	All-Elastomer-Based Triboelectric Nanogenerator as a Keyboard Cover To Harvest Typing Energy. <i>ACS Nano</i> , 2016 , 10, 7973-81	16.7	72
1756	Transparent and Flexible Self-Charging Power Film and Its Application in a Sliding Unlock System in Touchpad Technology. <i>ACS Nano</i> , 2016 , 10, 8078-86	16.7	75
1755	Highly compression-tolerant folded carbon nanotube/paper as solid-state supercapacitor electrode. 2016 , 11, 586-590		9
1754	Tribotronic Enhanced Photoresponsivity of a MoS Phototransistor. 2016 , 3, 1500419		54
1753	Toward Self-Powered Wearable Adhesive Skin Patch with Bendable Microneedle Array for Transdermal Drug Delivery. 2016 , 3, 1500441		75
1752	Triboelectric Nanogenerators Driven Self-Powered Electrochemical Processes for Energy and Environmental Science. 2016 , 6, 1600665		300
1751	Flow-less and shape-conformable CNT sheet nanogenerator for self-powered motion sensor. 2016 , 8, 16719-16724		2
1750	High-Performance Organic-Inorganic Hybrid Piezo-Nanogenerator via Interface Enhanced Polarization Effects for Self-Powered Electronic Systems. 2016 , 3, 1600492		26
1749	Triboelectric Nanogenerator: Lateral Sliding Mode. 2016 , 49-90		7
1748	Wearable Thermocells Based on Gel Electrolytes for the Utilization of Body Heat. 2016 , 128, 12229-12232		30
1747	A size-unlimited surface microstructure modification method for achieving high performance triboelectric nanogenerator. 2016 , 28, 172-178		93
1746	Enhanced dielectric performance of polyvinylidene fluoride composites with an all-carbon hybrid architecture: vertically aligned carbon nanotube arrays on graphite nanoplatelets. 2016 , 4, 8911-8919		26
1745	Self-powered Sensing for Chemical and Environmental Detection. 2016 , 469-489		
1744	Wearable Thermocells Based on Gel Electrolytes for the Utilization of Body Heat. 2016 , 55, 12050-3		132
1743	Harvesting Large-Scale Blue Energy. 2016 , 283-306		2
1742	Polymers, Plasmons, and Patterns: Mechanism of Plasmon-Induced Hydrosilylation on Silicon. 2016 , 28, 9158-9168		11
1741	3D Carbon Electrode Based Triboelectric Nanogenerator. 2016 , 1, 1600160		13
1740	Cylindrical Water Triboelectric Nanogenerator via Controlling Geometrical Shape of Anodized Aluminum for Enhanced Electrostatic Induction. 2016 , 8, 25014-8		31

1739	Investigation of motion artifacts for biopotential measurement in wearable devices. 2016,	4
1738	A Facile Approach To Develop a Highly Stretchable PVC/ZnSnO ₃ Piezoelectric Nanogenerator with High Output Power Generation for Powering Portable Electronic Devices. 2016, 55, 10671-10680	53
1737	Direct Writing of Patterned, Lead-Free Nanowire Aligned Flexible Piezoelectric Device. 2016, 3, 1600120	28
1736	Tribotronics—A new field by coupling triboelectricity and semiconductor. 2016, 11, 521-536	82
1735	Triboelectric Nanogenerators for Blue Energy Harvesting. <i>ACS Nano</i> , 2016, 10, 6429-32	16.7 143
1734	Self-powered graphene quantum dot/poly(vinylidene fluoride) composites with remarkably enhanced mechanical-to-electrical conversion. 2016, 6, 67400-67408	23
1733	Wearable Power-Textiles by Integrating Fabric Triboelectric Nanogenerators and Fiber-Shaped Dye-Sensitized Solar Cells. 2016, 6, 1601048	221
1732	Triboelectric driven turbine to generate electricity from the motion of water. 2016, 30, 379-386	40
1731	Triboelectric/thermoelectric hybrid nanogenerator for harvesting frictional energy. 2016, 25, 125007	37
1730	Large Scale Triboelectric Nanogenerator and Self-Powered Pressure Sensor Array Using Low Cost Roll-to-Roll UV Embossing. 2016, 6, 22253	87
1729	Hydrophobic SiO ₂ Electret Enhances the Performance of Poly(vinylidene fluoride) Nanofiber-Based Triboelectric Nanogenerator. 2016, 120, 26600-26608	20
1728	All-Textile Triboelectric Generator Compatible with Traditional Textile Process. 2016, 1, 1600147	59
1727	Self-powered liquid triboelectric microfluidic sensor for pressure sensing and finger motion monitoring applications. 2016, 30, 450-459	116
1726	Improving the Working Efficiency of a Triboelectric Nanogenerator by the Semimetallic PEDOT:PSS Hole Transport Layer and Its Application in Self-Powered Active Acetylene Gas Sensing. 2016, 8, 30079-30089	42
1725	One-Piece Triboelectric Nanosensor for Self-Triggered Alarm System and Latent Fingerprint Detection. <i>ACS Nano</i> , 2016, 10, 10366-10372	16.7 84
1724	Effective energy storage from a triboelectric nanogenerator. 2016, 7, 10987	310
1723	Paper-based triboelectric nanogenerators and their application in self-powered anticorrosion and antifouling. 2016, 4, 18022-18030	55
1722	A highly shape-adaptive, stretchable design based on conductive liquid for energy harvesting and self-powered biomechanical monitoring. 2016, 2, e1501624	221

1721	MEMS Based Broadband Piezoelectric Ultrasonic Energy Harvester (PUEH) for Enabling Self-Powered Implantable Biomedical Devices. 2016 , 6, 24946	103
1720	High performance triboelectric nanogenerators based on phase-inversion piezoelectric membranes of poly(vinylidene fluoride)-zinc stannate (PVDF-ZnSnO ₃) and polyamide-6 (PA6). 2016 , 30, 470-480	97
1719	Continuous Triboelectric Power Harvesting and Biochemical Sensing Inside Poly(vinylidene fluoride) Hollow Fibers Using Microfluidic Droplet Generation. 2016 , 1, 1600190	24
1718	3D-printed novel triboelectric generator based on saw-toothed button structure. 2016 ,	1
1717	All-Plastic-Materials Based Self-Charging Power System Composed of Triboelectric Nanogenerators and Supercapacitors. 2016 , 26, 1070-1076	152
1716	Outputting Olfactory Bionic Electric Impulse by PANI/PTFE/PANI Sandwich Nanostructures and their Application as Flexible, Smelling Electronic Skin. 2016 , 26, 3128-3138	80
1715	Robust Thin Films-Based Triboelectric Nanogenerator Arrays for Harvesting Bidirectional Wind Energy. 2016 , 6, 1501799	102
1714	Triboelectric Nanogenerators Based on Melamine and Self-Powered High-Sensitive Sensors for Melamine Detection. 2016 , 26, 3029-3035	36
1713	Sandwiched Composite Fluorocarbon Film for Flexible Electret Generator. 2016 , 2, 1500408	38
1712	Flexible, transparent and high-power triboelectric generator with asymmetric graphene/ITO electrodes. 2016 , 27, 30LT01	10
1711	Fully enclosed hybrid electromagnetic-triboelectric nanogenerator to scavenge vibrational energy. 2016 , 9, 2226-2233	64
1710	Visible-Light Induced Self-Powered Sensing Platform Based on a Photofuel Cell. 2016 , 88, 6140-4	58
1709	An integrated piezoelectric zinc oxide nanowire micro-energy harvester. 2016 , 26, 456-465	13
1708	Harvesting Broad Frequency Band Blue Energy by a Triboelectric-Electromagnetic Hybrid Nanogenerator. <i>ACS Nano</i> , 2016 , 10, 6526-34	16.7 184
1707	Magnetic-Assisted Noncontact Triboelectric Nanogenerator Converting Mechanical Energy into Electricity and Light Emissions. 2016 , 28, 2744-51	107
1706	Computational intelligence in wave energy: Comprehensive review and case study. 2016 , 58, 1223-1246	48
1705	Kinematic design for high performance triboelectric nanogenerators with enhanced working frequency. 2016 , 21, 19-25	31
1704	Triboelectric generator for wearable devices fabricated using a casting method. 2016 , 6, 10094-10098	17

1703	A self-powered organolead halide perovskite single crystal photodetector driven by a DVD-based triboelectric nanogenerator. 2016 , 4, 630-636	75
1702	ZnO nanowire interfaces for high strength multifunctional composites with embedded energy harvesting. 2016 , 9, 634-643	65
1701	A silk-fibroin-based transparent triboelectric generator suitable for autonomous sensor network. 2016 , 20, 37-47	96
1700	The adhesion behavior of carbon coating studied by re-indentation during in situ TEM nanoindentation. 2016 , 362, 49-55	12
1699	High output polypropylene nanowire array triboelectric nanogenerator through surface structural control and chemical modification. 2016 , 19, 48-57	104
1698	Micro/Nano Integrated Fabrication Technology and Its Applications in Microenergy Harvesting. 2016 ,	4
1697	Efficient Charging of Li-Ion Batteries with Pulsed Output Current of Triboelectric Nanogenerators. 2016 , 3, 1500255	98
1696	Suppression of nanowire clustering in hybrid energy harvesters. 2016 , 4, 3646-3653	5
1695	A self-powered active hydrogen gas sensor with fast response at room temperature based on triboelectric effect. 2016 , 231, 601-608	53
1694	A triboelectric textile templated by a three-dimensionally penetrated fabric. 2016 , 4, 6077-6083	48
1693	Self-powered flat panel displays enabled by motion-driven alternating current electroluminescence. 2016 , 20, 48-56	35
1692	A self-sustaining pyroelectric nanogenerator driven by water vapor. 2016 , 22, 19-26	65
1691	Molecular surface functionalization to enhance the power output of triboelectric nanogenerators. 2016 , 4, 3728-3734	177
1690	Improving the surface charge density of a contact-separation-based triboelectric nanogenerator by modifying the surface morphology. 2016 , 159, 102-107	50
1689	Pencil-ing a triboelectric power source on paper. 2016 ,	2
1688	A hybrid flapping-leaf microgenerator for harvesting wind-flow energy. 2016 ,	3
1687	Chemical modification of polymer surfaces for advanced triboelectric nanogenerator development. 2016 , 9, 514-530	107
1686	Phosphorene-based nanogenerator powered by cyclic molecular doping. 2016 , 23, 34-39	13

1685	Triboelectric Nanogenerator Based on the Internal Motion of Powder with a Package Structure Design. <i>ACS Nano</i> , 2016 , 10, 1017-24	16.7	39
1684	Force-assembled triboelectric nanogenerator with high-humidity-resistant electricity generation using hierarchical surface morphology. 2016 , 20, 283-293		77
1683	Highly Efficient Storage of Pulse Energy Produced by Triboelectric Nanogenerator in Li ₃ V ₂ (PO ₄) ₃ /C Cathode Li-Ion Batteries. 2016 , 8, 862-70		34
1682	Introduction. 2016 , 1-21		
1681	Flexible Triboelectric Nanogenerators: Principle and Fabrication. 2016 , 75-91		
1680	Flexible Triboelectric Nanogenerators: Enhancement and Applications. 2016 , 93-117		2
1679	Lattice Strain Induced Remarkable Enhancement in Piezoelectric Performance of ZnO-Based Flexible Nanogenerators. 2016 , 8, 1381-7		102
1678	Micro/nanostructured surfaces for self-powered and multifunctional electronic skins. 2016 , 4, 2999-3018		90
1677	Ultrasensitive, passive and wearable sensors for monitoring human muscle motion and physiological signals. 2016 , 77, 907-13		54
1676	High-output current density of the triboelectric nanogenerator made from recycling rice husks. 2016 , 19, 39-47		50
1675	Reduced graphene-oxide acting as electron-trapping sites in the friction layer for giant triboelectric enhancement. 2017 , 32, 542-550		99
1674	Atomic Layer Deposition for Advanced Electrode Design in Photoelectrochemical and Triboelectric Systems. 2017 , 4, 1600835		4
1673	Breath Figure Micromolding Approach for Regulating the Microstructures of Polymeric Films for Triboelectric Nanogenerators. 2017 , 9, 4988-4997		47
1672	Bacterial Nano-Cellulose Triboelectric Nanogenerator. 2017 , 33, 130-137		142
1671	On Maxwell's displacement current for energy and sensors: the origin of nanogenerators. 2017 , 20, 74-82		969
1670	Triboelectric Nanogenerators Based on Fluorinated Wasted Rubber Powder for Self-Powering Application. 2017 , 5, 1957-1964		27
1669	A sustainable freestanding biomechanical energy harvesting smart backpack as a portable-wearable power source. 2017 , 5, 1488-1493		46
1668	Self-powered artificial electronic skin for high-resolution pressure sensing. 2017 , 32, 389-396		101

1667	Penciling a triboelectric nanogenerator on paper for autonomous power MEMS applications. 2017 , 33, 393-401	95
1666	Wide-ranging impact-competent self-powered active sensor using a stacked corrugated-core sandwich-structured robust triboelectric nanogenerator. 2017 , 245, 1-10	19
1665	A fully-packaged and robust hybridized generator for harvesting vertical rotation energy in broad frequency band and building up self-powered wireless systems. 2017 , 33, 508-514	54
1664	Texture and sliding motion sensation with a triboelectric-nanogenerator transducer. 2017 , 256, 89-94	10
1663	Self-powered, stretchable, fiber-based electronic-skin for actively detecting human motion and environmental atmosphere based on a triboelectrification/gas-sensing coupling effect. 2017 , 5, 1231-1239	38
1662	Magnetically levitated-triboelectric nanogenerator as a self-powered vibration monitoring sensor. 2017 , 33, 88-97	46
1661	Enhancement of output performance through post-poling technique on BaTiO/PDMS-based triboelectric nanogenerator. 2017 , 28, 075203	19
1660	A prototype DC triboelectric generator for harvesting energy from natural environment. 2017 , 86, 34-40	6
1659	Controlled fabrication of nanoscale wrinkle structure by fluorocarbon plasma for highly transparent triboelectric nanogenerator. 2017 , 3, 16074	41
1658	Sustainable Energy Source for Wearable Electronics Based on Multilayer Elastomeric Triboelectric Nanogenerators. 2017 , 7, 1602832	104
1657	Evolutionary trend analysis of nanogenerator research based on a novel perspective of phased bibliographic coupling. 2017 , 34, 93-102	64
1656	Chemical Electrostatics. 2017 ,	15
1655	Service Behavior of Multifunctional Triboelectric Nanogenerators. 2017 , 29, 1606703	88
1654	Triboelectric nanogenerators for sensitive nano-coulomb molecular mass spectrometry. 2017 , 12, 481-487	183
1653	Realization of triboelectric energy harvesters using steel-polymer microfabrication methods. 2017 ,	4
1652	Stretchable thin-film generator with dual working modes for body motion energy harvesting. 2017 ,	
1651	Broadband Energy Harvester Using Non-linear Polymer Spring and Electromagnetic/Triboelectric Hybrid Mechanism. 2017 , 7, 41396	82
1650	Mechanical, Thermal, and Electrical Energy Storage in a Single Working Body: Electrification and Thermal Effects upon Pressure-Induced Water Intrusion-Extrusion in Nanoporous Solids. 2017 , 9, 7044-7049	17

1649	Green chemistry and polymers made from sulfur. 2017 , 19, 2748-2761	186
1648	Enhanced performance of ZnO microballoon arrays for a triboelectric nanogenerator. 2017 , 28, 135401	23
1647	Recent advances in wearable tactile sensors: Materials, sensing mechanisms, and device performance. 2017 , 115, 1-37	405
1646	Defect-promoted photo-electrochemical performance enhancement of orange-luminescent ZnO nanorod-arrays. 2017 , 19, 12255-12268	25
1645	High performance lithium-sulfur batteries for storing pulsed energy generated by triboelectric nanogenerators. 2017 , 7, 425	8
1644	Study of a Hybrid Generator Based on Triboelectric and Electromagnetic Mechanisms. 2017 , 17, 3853-3860	14
1643	Efficient Storing Energy Harvested by Triboelectric Nanogenerators Using a Safe and Durable All-Solid-State Sodium-Ion Battery. 2017 , 4, 1700072	120
1642	A wearable strain sensor based on a carbonized nano-sponge/silicone composite for human motion detection. 2017 , 9, 6680-6685	113
1641	Research Update: Nanogenerators for self-powered autonomous wireless sensors. 2017 , 5, 073803	31
1640	A smart mobile pouch as a biomechanical energy harvester towards self-powered smart wireless power transfer applications. 2017 , 9, 9818-9824	37
1639	High-Performance Triboelectric Nanogenerators Based on Solid Polymer Electrolytes with Asymmetric Pairing of Ions. 2017 , 7, 1700289	95
1638	Corrugated Textile based Triboelectric Generator for Wearable Energy Harvesting. 2017 , 7, 45583	53
1637	Auxetic Foam-Based Contact-Mode Triboelectric Nanogenerator with Highly Sensitive Self-Powered Strain Sensing Capabilities to Monitor Human Body Movement. 2017 , 27, 1606695	110
1636	Nanogenerators for Self-Powered Gas Sensing. 2017 , 9, 45	91
1635	Maximized Effective Energy Output of Contact-Separation-Triggered Triboelectric Nanogenerators as Limited by Air Breakdown. 2017 , 27, 1700049	90
1634	WGs sensor based on integrated wind-induced generating units for 360° wind energy harvesting and self-powered wind velocity sensing. 2017 , 7, 23208-23214	8
1633	Research Update: Hybrid energy devices combining nanogenerators and energy storage systems for self-charging capability. 2017 , 5, 073804	46
1632	A self-powered sterilization system with both instant and sustainable anti-bacterial ability. 2017 , 36, 241-249	70

1631	A triboelectric charge top-gated graphene transistor. 2017 , 73, 33-38	5
1630	Application of carbon fibers to flexible, miniaturized wire/fiber-shaped energy conversion and storage devices. 2017 , 5, 2444-2459	51
1629	Flexible transparent tribotronic transistor for active modulation of conventional electronics. 2017 , 31, 533-540	49
1628	Energy conversion technologies towards self-powered electrochemical energy storage systems: the state of the art and perspectives. 2017 , 5, 1873-1894	88
1627	Electrically Transduced Sensors Based on Nanomaterials (2012-2016). 2017 , 89, 249-275	54
1626	From triboelectric nanogenerator to self-powered smart floor: A minimalist design. 2017 , 39, 192-199	29
1625	Chemically Functionalized Natural Cellulose Materials for Effective Triboelectric Nanogenerator Development. 2017 , 27, 1700794	147
1624	3D printed noise-cancelling triboelectric nanogenerator. 2017 , 38, 377-384	32
1623	Magnetically levitated/piezoelectric/triboelectric hybrid generator as a power supply for the temperature sensor. 2017 , 60, 1068-1074	5
1622	Piezoelectric peptide-based nanogenerator enhanced by single-electrode triboelectric nanogenerator. 2017 , 5, 074108	34
1621	Characteristics of triboelectrification on dielectric surfaces contacted with a liquid metal in different gases. 2017 , 110, 201603	16
1620	Electrogenerated Chemiluminescence of Semiconductor Nanoparticles and Their Applications in Biosensors. 2017 , 4, 1573-1586	20
1619	Portable triboelectric based wind energy harvester for low power applications. 2017 , 132, 1	14
1618	Energy Harvesting from the Animal/Human Body for Self-Powered Electronics. 2017 , 19, 85-108	227
1617	Hourglass Triboelectric Nanogenerator as a Direct Current Power Source. 2017 , 7, 1700644	26
1616	Self-powered wireless smart sensor based on maglev porous nanogenerator for train monitoring system. 2017 , 38, 185-192	113
1615	Supramolecular-Assembled Nanoporous Film with Switchable Metal Salts for a Triboelectric Nanogenerator. 2017 , 27, 1701367	17
1614	Multifunctional Textile for Energy Harvesting and Self-Powered Sensing Applications. 2017 , 77, 47-50	1

1613	Self-powered modulation of elastomeric optical grating by using triboelectric nanogenerator. 2017 , 38, 91-100		60
1612	Lignin biopolymer based triboelectric nanogenerators. 2017 , 5, 074109		29
1611	Ultrastretchable, transparent triboelectric nanogenerator as electronic skin for biomechanical energy harvesting and tactile sensing. 2017 , 3, e1700015		674
1610	A new class of flexible nanogenerators consisting of porous aerogel films driven by mechanoradicals. 2017 , 38, 401-411		39
1609	High efficiency power management and charge boosting strategy for a triboelectric nanogenerator. 2017 , 38, 438-446		127
1608	Magnetic force driven noncontact electromagnetic-triboelectric hybrid nanogenerator for scavenging biomechanical energy. 2017 , 35, 233-241		79
1607	Research Update: Materials design of implantable nanogenerators for biomechanical energy harvesting. 2017 , 5,		51
1606	Remarkable increase in triboelectrification by enhancing the conformable contact and adhesion energy with a film-covered pillar structure. 2017 , 34, 233-241		20
1605	From Dual-Mode Triboelectric Nanogenerator to Smart Tactile Sensor: A Multiplexing Design. <i>ACS Nano</i> , 2017 , 11, 3950-3956	16.7	96
1604	Nanohydrogel Brushes for Switchable Underwater Adhesion. 2017 , 121, 8452-8463		17
1603	Direct-laser-patterned friction layer for the output enhancement of a triboelectric nanogenerator. 2017 , 35, 379-386		48
1602	Effect of Zr/Ti ratio on microstructure and electrical properties of pyroelectric ceramics for energy harvesting applications. 2017 , 710, 869-874		22
1601	Nanogenerators: An emerging technology towards nanoenergy. 2017 , 5, 074103		121
1600	Tribogenerators. 2017 , 157-168		
1599	Tribotronic Tuning Diode for Active Analog Signal Modulation. <i>ACS Nano</i> , 2017 , 11, 882-888	16.7	27
1598	Flexible Triboelectric Nanogenerator Based on Carbon Nanotubes for Self-Powered Weighing . 2017 , 19, 1600710		30
1597	A Highly Stretchable Fiber-Based Triboelectric Nanogenerator for Self-Powered Wearable Electronics. 2017 , 27, 1604378		230
1596	A wave-shaped hybrid piezoelectric and triboelectric nanogenerator based on P(VDF-TrFE) nanofibers. 2017 , 9, 1263-1270		90

1595	A leaf-molded transparent triboelectric nanogenerator for smart multifunctional applications. 2017 , 32, 180-186	67
1594	Effective energy storage from a hybridized electromagnetic-triboelectric nanogenerator. 2017 , 32, 36-41	115
1593	An inductor-free auto-power-management design built-in triboelectric nanogenerators. 2017 , 31, 302-310	85
1592	Inductively-coupled-plasma-induced electret enhancement for triboelectric nanogenerators. 2017 , 28, 035405	19
1591	Magnetic energy harvesting with magnetoelectrics: an emerging technology for self-powered autonomous systems. 2017 , 1, 2039-2052	66
1590	Self-Powered Dual-Mode Amenity Sensor Based on the Water-Air Triboelectric Nanogenerator. <i>ACS Nano</i> , 2017 , 11, 10337-10346	16.7 81
1589	Self-Powered Nanoscale Photodetectors. 2017 , 13, 1701848	130
1588	Reviving Vibration Energy Harvesting and Self-Powered Sensing by a Triboelectric Nanogenerator. 2017 , 1, 480-521	487
1587	Nature-Inspired Structural Materials for Flexible Electronic Devices. 2017 , 117, 12893-12941	401
1586	Interconnect patterns for printed organic thermoelectric devices with large fill factors. 2017 , 122, 124507	18
1585	A power management circuit with 50% efficiency and large load capacity for triboelectric nanogenerator. 2017 , 38, 095001	15
1584	Energy Device Applications of Synthesized 1D Polymer Nanomaterials. 2017 , 13, 1701820	31
1583	Design and experiment of hybridized electromagnetic-triboelectric energy harvester using Halbach magnet array from handshaking vibration. 2017 , 153, 1-11	37
1582	Triboelectric effect: A new perspective on electron transfer process. 2017 , 122, 144302	36
1581	Natural triboelectric nanogenerator based on soles for harvesting low-frequency walking energy. 2017 , 42, 138-142	76
1580	Surface structural analysis of a friction layer for a triboelectric nanogenerator. 2017 , 42, 34-42	52
1579	Wearable triboelectric nanogenerator using a plasma-etched PDMS/INT composite for a physical activity sensor. 2017 , 7, 48368-48373	41
1578	A Triboelectric Self-Powered Sensor for Tire Condition Monitoring: Concept, Design, Fabrication, and Experiments. 2017 , 19, 1700318	26

1577	A Sliding-Mode Triboelectric Nanogenerator with Chemical Group Grated Structure by Shadow Mask Reactive Ion Etching. <i>ACS Nano</i> , 2017 , 11, 8796-8803	16.7	67
1576	A One-Dimensional Fluidic Nanogenerator with a High Power Conversion Efficiency. 2017 , 56, 12940-12945		74
1575	A One-Dimensional Fluidic Nanogenerator with a High Power Conversion Efficiency. 2017 , 129, 13120-13125		8
1574	Fully self-healing and shape-tailorable triboelectric nanogenerators based on healable polymer and magnetic-assisted electrode. 2017 , 40, 399-407		82
1573	Flexible transparent high-voltage diodes for energy management in wearable electronics. 2017 , 40, 289-299		30
1572	A Highly Stretchable and Washable All-Yarn-Based Self-Charging Knitting Power Textile Composed of Fiber Triboelectric Nanogenerators and Supercapacitors. <i>ACS Nano</i> , 2017 , 11, 9490-9499	16.7	320
1571	Self-Powered Electrospinning System Driven by a Triboelectric Nanogenerator. <i>ACS Nano</i> , 2017 , 11, 10438-10445	16.7	416
1570	Size effect on the output of a miniaturized triboelectric nanogenerator based on superimposed electrode layers. 2017 , 41, 128-138		19
1569	A sandpaper assisted micro-structured polydimethylsiloxane fabrication for human skin based triboelectric energy harvesting application. 2017 , 206, 150-158		75
1568	Improved triboelectrification effect by bendable and slidable fish-scale-like microstructures. 2017 , 40, 646-654		23
1567	Self-powered Real-time Movement Monitoring Sensor Using Triboelectric Nanogenerator Technology. 2017 , 7, 10521		47
1566	Biomimetic Artificial Basilar Membranes for Next-Generation Cochlear Implants. 2017 , 6, 1700674		15
1565	A triboelectric generator based on self-poled Nylon-11 nanowires fabricated by gas-flow assisted template wetting. 2017 , 10, 2180-2189		69
1564	Triboelectrification-enabled touch sensing for self-powered position mapping and dynamic tracking by a flexible and area-scalable sensor array. 2017 , 41, 387-393		50
1563	A transparent silk-fibroin-based triboelectric microgenerator for airflow energy harvesting. 2017 ,		0
1562	Seesaw-structured triboelectric nanogenerator for scavenging electrical energy from rotational motion of mechanical systems. 2017 , 263, 600-609		13
1561	Wearable All-Fabric-Based Triboelectric Generator for Water Energy Harvesting. 2017 , 7, 1701243		149
1560	Tribotronic transistor sensor for enhanced hydrogen detection. 2017 , 10, 3857-3864		9

1559	Enhanced Triboelectric Nanogenerators Based on MoS Monolayer Nanocomposites Acting as Electron-Acceptor Layers. <i>ACS Nano</i> , 2017 , 11, 8356-8363	16.7	126
1558	Smart Floor with Integrated Triboelectric Nanogenerator As Energy Harvester and Motion Sensor. 2017 , 9, 26126-26133		46
1557	Recent progresses on flexible tactile sensors. 2017 , 1, 61-73		137
1556	A Self-Powered Active Antibacterial System Controlled by Human Motions. 2017 , 77, 57-61		0
1555	Toward Flexible Wireless Pressure-Sensing Device via Ionic Hydrogel Microsphere for Continuously Mapping Human-Skin Signals. 2017 , 4, 1700496		27
1554	Simple and rapid fabrication of pencil-on-paper triboelectric nanogenerators with enhanced electrical performance. 2017 , 9, 13034-13041		23
1553	Fingertip-inspired electronic skin based on triboelectric sliding sensing and porous piezoresistive pressure detection. 2017 , 40, 65-72		84
1552	Rotating-Sleeve Triboelectric-Electromagnetic Hybrid Nanogenerator for High Efficiency of Harvesting Mechanical Energy. <i>ACS Nano</i> , 2017 , 11, 8370-8378	16.7	81
1551	Solid-liquid triboelectrification in smart U-tube for multifunctional sensors. 2017 , 40, 95-106		59
1550	A wearable, fibroid, self-powered active kinematic sensor based on stretchable sheath-core structural triboelectric fibers. 2017 , 39, 673-683		53
1549	Triboelectric Nanogenerator Using Lithium Niobate Thin Film. 2017 , 867, 012014		
1548	3D Orthogonal Woven Triboelectric Nanogenerator for Effective Biomechanical Energy Harvesting and as Self-Powered Active Motion Sensors. 2017 , 29, 1702648		225
1547	Highly stretchable fiber-based single-electrode triboelectric nanogenerator for wearable devices. 2017 , 7, 54829-54834		40
1546	Arch-Shaped triboelectric nanogenerator as a facile device for water-wave vibrational energy. 2017 , 71, 679-683		5
1545	Core-Shell-Yarn-Based Triboelectric Nanogenerator Textiles as Power Cloths. <i>ACS Nano</i> , 2017 , 11, 12764-12771	16.7	143
1544	Self-Powered Electrostatic Filter with Enhanced Photocatalytic Degradation of Formaldehyde Based on Built-in Triboelectric Nanogenerators. <i>ACS Nano</i> , 2017 , 11, 12411-12418	16.7	120
1543	A novel interface circuit for triboelectric nanogenerator. 2017 , 38, 105009		1
1542	Triboelectric nanogenerators: providing a fundamental framework. 2017 , 10, 1801-1811		130

1541	Integrated hybrid nanogenerator for gas energy recycle and purification. 2017 , 39, 524-531	31
1540	Single-Thread-Based Wearable and Highly Stretchable Triboelectric Nanogenerators and Their Applications in Cloth-Based Self-Powered Human-Interactive and Biomedical Sensing. 2017 , 27, 1604462	242
1539	Ultra-Stable Electret Nanogenerator to Scavenge High-Speed Rotational Energy for Self-Powered Electronics. 2017 , 2, 1600233	19
1538	Solution-processed black phosphorus/PCBM hybrid heterojunctions for solar cells. 2017 , 5, 8280-8286	46
1537	Quantifying Energy Harvested from Contact-Mode Hybrid Nanogenerators with Cascaded Piezoelectric and Triboelectric Units. 2017 , 7, 1601569	51
1536	Stretchable Porous Carbon Nanotube-Elastomer Hybrid Nanocomposite for Harvesting Mechanical Energy. 2017 , 29, 1603115	137
1535	Aligning graphene sheets in PDMS for improving output performance of triboelectric nanogenerator. 2017 , 111, 569-576	95
1534	Simulation and structure optimization of triboelectric nanogenerators considering the effects of parasitic capacitance. 2017 , 10, 157-171	37
1533	Graphene Tribotronics for Electronic Skin and Touch Screen Applications. 2017 , 29, 1603544	160
1532	Flexible Transparent Triboelectric Nanogenerators with Graphene and Indium Tin Oxide Electrode Structures. 2017 , 5, 599-603	7
1531	An Ultrathin Flexible Single-Electrode Triboelectric-Nanogenerator for Mechanical Energy Harvesting and Instantaneous Force Sensing. 2017 , 7, 1601255	135
1530	A power manager system with 78% efficiency for high-voltage triboelectric nanogenerators. 2017 , 60, 1	
1529	High-performance reverse electrowetting energy harvesting using atomic-layer-deposited dielectric film. 2017 , 31, 450-455	30
1528	Ferrofluid-based triboelectric-electromagnetic hybrid generator for sensitive and sustainable vibration energy harvesting. 2017 , 31, 233-238	88
1527	Environmentally Friendly Hydrogel-Based Triboelectric Nanogenerators for Versatile Energy Harvesting and Self-Powered Sensors. 2017 , 7, 1601529	147
1526	Theory of gel expansion to generate electrical energy. 2017 , 120, 46002	3
1525	Demonstration of double electrode vertical-sliding triboelectric generator. 2017 ,	1
1524	Modeling an Impact Vibration Harvester With Triboelectric Transduction. 2017 ,	

1523	Harvesting energy from low-frequency excitations through alternate contacts between water and two dielectric materials. 2017 , 7, 17145	16
1522	A novel triboelectric nanogenerator with high performance and long duration time of sinusoidal current generation. 2017 ,	
1521	High-performance hybrid generator based on low frequency stochastic resonance. 2017 ,	1
1520	Computational investigation of material combinations in triboelectric generators. 2017 ,	2
1519	Zinc Oxide-Based Self-Powered Potentiometric Chemical Sensors for Biomolecules and Metal Ions. 2017 , 17,	14
1518	Energy Harvesting Based on Polymer. 2017 , 151-196	6
1517	Design and Experimental Study of an L Shape Piezoelectric Energy Harvester. 2017 , 2017, 1-8	3
1516	Self-powered versatile shoes based on hybrid nanogenerators. 2018 , 11, 3972-3978	36
1515	Replica molding-based nanopatterning of tribocharge on elastomer with application to electrohydrodynamic nanolithography. 2018 , 9, 974	15
1514	A droplet energy harvesting and actuation system for self-powered digital microfluidics. 2018 , 18, 1026-1034	34
1513	Hybridized nanogenerator based on honeycomb-like three electrodes for efficient ocean wave energy harvesting. 2018 , 47, 217-223	64
1512	Enhanced output power from triboelectric nanogenerators based on electrospun Eu-doped polyvinylidene fluoride nanofibers. 2018 , 117, 188-193	18
1511	Suppressing self-discharge of supercapacitors via electrorheological effect of liquid crystals. 2018 , 47, 43-50	113
1510	Fabrication, characterization and in vitro evaluation of triboelectric nanogenerator based on 317 L stainless steel and polylactic acid. 2018 , 29, 205402	5
1509	All-in-one self-powered flexible microsystems based on triboelectric nanogenerators. 2018 , 47, 410-426	185
1508	GPS-Inspired Stretchable Self-Powered Electronic Skin. 2018 , 17, 460-466	5
1507	Metal-free, flexible triboelectric generator based on MWCNT mesh film and PDMS layers. 2018 , 442, 693-699	21
1506	Whirligig-inspired triboelectric nanogenerator with ultrahigh specific output as reliable portable instant power supply for personal health monitoring devices. 2018 , 47, 74-80	94

1505	Triboelectric nanogenerator as a new technology for effective PM2.5 removing with zero ozone emission. 2018 , 28, 99-112		19
1504	Impedance Matching Effect between a Triboelectric Nanogenerator and a Piezoresistive Pressure Sensor Induced Self-Powered Weighing. 2018 , 3, 1800054		42
1503	Si@void@C Nanofibers Fabricated Using a Self-Powered Electrospinning System for Lithium-Ion Batteries. <i>ACS Nano</i> , 2018 , 12, 4835-4843	16.7	90
1502	Highly Flexible, Large-Area, and Facile Textile-Based Hybrid Nanogenerator with Cascaded Piezoelectric and Triboelectric Units for Mechanical Energy Harvesting. 2018 , 3, 1800016		47
1501	Lead-Free Perovskite Nanowire-Employed Piezopolymer for Highly Efficient Flexible Nanocomposite Energy Harvester. 2018 , 14, e1704022		102
1500	On-vehicle triboelectric nanogenerator enabled self-powered sensor for tire pressure monitoring. 2018 , 49, 126-136		59
1499	Hybridized Nanogenerators for Harvesting Vibrational Energy by TriboelectricPiezoelectricElectromagnetic Effects. 2018 , 3, 1800019		25
1498	Application of Triboelectric Nanogenerator in the Railway System. 2018 , 895-904		2
1497	Energy-loss return gate via liquid dielectric polarization. 2018 , 9, 1437		9
1496	Hybrid generator based on freestanding magnet as all-direction in-plane energy harvester and vibration sensor. 2018 , 49, 51-58		47
1495	Characterization of Triboelectric Charge Generation between PTFE and Nylon after Repeated Contacts. 2018 , 4, 165-176		1
1494	Triboelectric Nanogenerator Based on Human Hair. 2018 , 6, 6321-6327		26
1493	Soft and Flexible Bilayer Thermoplastic Polyurethane Foam for Development of Bioinspired Artificial Skin. 2018 , 10, 14008-14016		28
1492	Highly Adaptive Solid-Liquid Interfacing Triboelectric Nanogenerator for Harvesting Diverse Water Wave Energy. <i>ACS Nano</i> , 2018 , 12, 4280-4285	16.7	94
1491	Trash to energy: A facile, robust and cheap approach for mitigating environment pollutant using household triboelectric nanogenerator. 2018 , 219, 338-349		52
1490	CNTs-added PMNT/PDMS flexible piezoelectric nanocomposite for energy harvesting application. 2018 , 187, 70-79		4
1489	Study on friction-electrification coupling in sliding-mode triboelectric nanogenerator. 2018 , 48, 456-463		47
1488	Inversely polarised ferroelectric polymer contact electrodes for triboelectric-like generators from identical materials. 2018 , 11, 1437-1443		28

1487	Performance modulation of contact electrification nanogenerators by controlling the doping concentration of fluorine-doped tin oxide. 2018 , 44, 12477-12482	5
1486	Flexure hinges based triboelectric nanogenerator by 3D printing. 2018 , 20, 38-45	25
1485	Gradient doped polymer nanowire for moistelectric nanogenerator. 2018 , 46, 297-304	49
1484	Magnetorheological elastomers enabled high-sensitive self-powered tribo-sensor for magnetic field detection. 2018 , 10, 4745-4752	54
1483	A Highly Stretchable Transparent Self-Powered Triboelectric Tactile Sensor with Metallized Nanofibers for Wearable Electronics. 2018 , 30, e1706738	230
1482	MEMS based energy harvesting for the Internet of Things: a survey. 2018 , 24, 2853-2869	35
1481	Wide Range Fabrication of Wrinkle Patterns for Maximizing Surface Charge Density of a Triboelectric Nanogenerator. 2018 , 27, 106-112	21
1480	Lithium-Ion Batteries: Charged by Triboelectric Nanogenerators with Pulsed Output Based on the Enhanced Cycling Stability. 2018 , 10, 8676-8684	14
1479	Superhydrophobic WS-Nanosheet-Wrapped Sponges for Underwater Detection of Tiny Vibration. 2018 , 5, 1700655	39
1478	Triboelectrification-Enabled Self-Powered Data Storage. 2018 , 5, 1700658	13
1477	Natural Leaf Made Triboelectric Nanogenerator for Harvesting Environmental Mechanical Energy. 2018 , 8, 1703133	151
1476	Wireless Electric Energy Transmission through Various Isolated Solid Media Based on Triboelectric Nanogenerator. 2018 , 8, 1703086	53
1475	A Self-Powered Portable Power Bank Based on a Hybridized Nanogenerator. 2018 , 3, 1700209	14
1474	The grand challenges of. 2018 , 3,	464
1473	Triboelectric nanogenerator based on immersion precipitation derived highly porous ethyl cellulose. 2018 , 92, 1-5	20
1472	Soft triboelectric generators by use of cost-effective elastomers and simple casting process. 2018 , 271, 88-95	18
1471	Highly Porous Polymer Aerogel Film-Based Triboelectric Nanogenerators. 2018 , 28, 1706365	131
1470	Emulsion Electrospinning of Polytetrafluoroethylene (PTFE) Nanofibrous Membranes for High-Performance Triboelectric Nanogenerators. 2018 , 10, 5880-5891	82

1469	Engineered and Laser-Processed Chitosan Biopolymers for Sustainable and Biodegradable Triboelectric Power Generation. 2018 , 30, 1706267	104
1468	Liquid-Metal-Based Super-Stretchable and Structure-Designable Triboelectric Nanogenerator for Wearable Electronics. <i>ACS Nano</i> , 2018 , 12, 2027-2034	16.7 247
1467	The Charging Events in Contact-Separation Electrification. 2018 , 8, 2472	30
1466	Liquid-FEP-based U-tube triboelectric nanogenerator for harvesting water-wave energy. 2018 , 11, 4062-4073	99
1465	Managing and optimizing the output performances of a triboelectric nanogenerator by a self-powered electrostatic vibrator switch. 2018 , 46, 220-228	76
1464	A Self-Powered Lantern Based on a Triboelectric-Photovoltaic Hybrid Nanogenerator. 2018 , 3, 1700371	16
1463	Tunable Tribotronic Dual-Gate Logic Devices Based on 2D-MoS and Black Phosphorus. 2018 , 30, e1705088	66
1462	Radial-Grating Pendulum-Structured Triboelectric Nanogenerator for Energy Harvesting and Tilting-Angle Sensing. 2018 , 3, 1700251	12
1461	Development, applications, and future directions of triboelectric nanogenerators. 2018 , 11, 2951-2969	66
1460	Large-Area Direct Laser-Shock Imprinting of a 3D Biomimic Hierarchical Metal Surface for Triboelectric Nanogenerators. 2018 , 30, 1705840	70
1459	Piezoelectric-Induced Triboelectric Hybrid Nanogenerators Based on the ZnO Nanowire Layer Decorated on the Au/polydimethylsiloxane-Al Structure for Enhanced Triboelectric Performance. 2018 , 10, 6433-6440	25
1458	Self-powered nanofiber-based screen-print triboelectric sensors for respiratory monitoring. 2018 , 11, 3771-3779	72
1457	Enhancing the Output Charge Density of TENG via Building Longitudinal Paths of Electrostatic Charges in the Contacting Layers. 2018 , 10, 2158-2165	47
1456	Humidity Influence on Optical Properties of Nanowire Colloids with Modulated Visual Response to Electrostatic Charge. 2018 , 22, 34-37	2
1455	A Hybrid Electromagnetic-Triboelectric Energy Harvester Using a Dual Halbach Magnet Array Powered by Human-Body-Induced Motion. 2018 , 3, 1700240	15
1454	Three-dimensional ultraflexible triboelectric nanogenerator made by 3D printing. 2018 , 45, 380-389	135
1453	Ultrasensitive Flexible Proximity Sensor Based on Organic Crystal for Location Detection. 2018 , 10, 2785-2792	35
1452	Coupled Supercapacitor and Triboelectric Nanogenerator Boost Biomimetic Pressure Sensor. 2018 , 8, 1702671	101

1451	Self-Powered Vehicle Emission Testing System Based on Coupling of Triboelectric and Chemoresistive Effects. 2018 , 28, 1703420	73
1450	An advanced electro-Fenton degradation system with triboelectric nanogenerator as electric supply and biomass-derived carbon materials as cathode catalyst. 2018 , 45, 21-27	63
1449	Triboelectric nanogenerators as self-powered acceleration sensor under high-g impact. 2018 , 45, 84-93	40
1448	Triboelectric Nanogenerator Tree for Harvesting Wind Energy and Illuminating in Subway Tunnel. 2018 , 3, 1700317	64
1447	Complementary Electromagnetic-Triboelectric Active Sensor for Detecting Multiple Mechanical Triggering. 2018 , 28, 1705808	68
1446	Scavenging Wind Energy by Triboelectric Nanogenerators. 2018 , 8, 1702649	200
1445	Generating Electricity from Water through Carbon Nanomaterials. 2018 , 24, 6287-6294	39
1444	A Self-Powered and Flexible Organometallic Halide Perovskite Photodetector with Very High Detectivity. 2018 , 30, 1704611	245
1443	Shape Memory Polymers for Body Motion Energy Harvesting and Self-Powered Mechanosensing. 2018 , 30, 1705195	194
1442	Triboelectrification-Induced Self-Assembly of Macro-Sized Polymer Beads on a Nanostructured Surface for Self-Powered Patterning. <i>ACS Nano</i> , 2018 , 12, 441-447	16.7 8
1441	High performance human-induced vibration driven hybrid energy harvester for powering portable electronics. 2018 , 45, 236-246	52
1440	Particle TransportBased Triboelectric Nanogenerator for Self-Powered Mass-Flow Detection and Explosion Early Warning. 2018 , 3, 1800009	7
1439	A Stretchable, Flexible Triboelectric Nanogenerator for Self-Powered Real-Time Motion Monitoring. 2018 , 3, 1800021	54
1438	A Compound Yarn Based Wearable Triboelectric Nanogenerator for Self-Powered Wearable Electronics. 2018 , 3, 1800065	24
1437	Coupling Enzymes and Inorganic Piezoelectric Materials for Electricity Production from Renewable Fuels. 2018 , 1, 2032-2040	3
1436	A biomimetic nanofiber-based triboelectric nanogenerator with an ultrahigh transfer charge density. 2018 , 48, 464-470	38
1435	Sustained electron tunneling at unbiased metal-insulator-semiconductor triboelectric contacts. 2018 , 48, 320-326	68
1434	High-performance flexible triboelectric nanogenerator based on porous aerogels and electrospun nanofibers for energy harvesting and sensitive self-powered sensing. 2018 , 48, 327-336	138

1433	Ultralight, self-powered and self-adaptive motion sensor based on triboelectric nanogenerator for perceptual layer application in Internet of things. 2018 , 48, 312-319		39
1432	Freestanding Triboelectric Nanogenerator Enables Noncontact Motion-Tracking and Positioning. <i>ACS Nano</i> , 2018 , 12, 3461-3467	16.7	55
1431	An electret film-based triboelectric nanogenerator with largely improved performance via a tape-peeling charging method. 2018 , 48, 256-265		16
1430	Facile Method and Novel Dielectric Material Using a Nanoparticle-Doped Thermoplastic Elastomer Composite Fabric for Triboelectric Nanogenerator Applications. 2018 , 10, 13082-13091		36
1429	Self-Powered Wind Sensor System for Detecting Wind Speed and Direction Based on a Triboelectric Nanogenerator. <i>ACS Nano</i> , 2018 , 12, 3954-3963	16.7	143
1428	Rolling friction contact-separation mode hybrid triboelectric nanogenerator for mechanical energy harvesting and self-powered multifunctional sensors. 2018 , 47, 539-546		54
1427	Flexible triboelectric nanogenerator based on cost-effective thermoplastic polymeric nanofiber membranes for body-motion energy harvesting with high humidity-resistance. 2018 , 48, 248-255		31
1426	Ambient vibration energy harvesters: A review on nonlinear techniques for performance enhancement. 2018 , 127, 162-185		162
1425	Stretchable 3D polymer for simultaneously mechanical energy harvesting and biomimetic force sensing. 2018 , 47, 442-450		29
1424	Triboelectric nanogenerators with gold-thin-film-coated conductive textile as floating electrode for scavenging wind energy. 2018 , 11, 101-113		33
1423	Triboelectric nanogenerator based on magnetically induced retractable spring steel tapes for efficient energy harvesting of large amplitude motion. 2018 , 11, 633-641		21
1422	Integrative square-grid triboelectric nanogenerator as a vibrational energy harvester and impulsive force sensor. 2018 , 11, 1157-1164		30
1421	Au nanocomposite enhanced electret film for triboelectric nanogenerator. 2018 , 11, 3096-3105		60
1420	Discharge voltage behavior of electric double-layer capacitors during high-g impact and their application to autonomously sensing high-g accelerometers. 2018 , 11, 1146-1156		13
1419	Intelligent Sensing System Based on Hybrid Nanogenerator by Harvesting Multiple Clean Energy. 2018 , 20, 1700886		16
1418	Water wave energy harvesting and self-powered liquid-surface fluctuation sensing based on bionic-jellyfish triboelectric nanogenerator. 2018 , 21, 88-97		129
1417	A review on heat and mechanical energy harvesting from human [Principles, prototypes and perspectives. 2018 , 82, 3582-3609		100
1416	Triboelectric-piezoelectric-electromagnetic hybrid nanogenerator for high-efficient vibration energy harvesting and self-powered wireless monitoring system. 2018 , 43, 326-339		121

1415	Surface texturing and dielectric property tuning toward boosting of triboelectric nanogenerator performance. 2018 , 6, 52-57	77
1414	A novel cell-scale bio-nanogenerator based on electron-ion interaction for fast light power conversion. 2018 , 10, 526-532	7
1413	Toward Wearable Self-Charging Power Systems: The Integration of Energy-Harvesting and Storage Devices. 2018 , 14, 1702817	200
1412	High-Intensity Triboelectrification-Induced Electroluminescence by Microsized Contacts for Self-Powered Display and Illumination. 2018 , 5, 1701063	20
1411	Ultra-robust triboelectric nanogenerator for harvesting rotary mechanical energy. 2018 , 11, 2862-2871	32
1410	Direct-current triboelectricity generation by a sliding Schottky nanocontact on MoS multilayers. 2018 , 13, 112-116	146
1409	Double characteristic BNO-SPI-TENGs for robust contact electrification by vertical contact separation mode through ion and electron charge transfer. 2018 , 44, 430-437	21
1408	Experimental and theoretical investigation of an impact vibration harvester with triboelectric transduction. 2018 , 416, 111-124	34
1407	Metallic MXenes: A new family of materials for flexible triboelectric nanogenerators. 2018 , 44, 103-110	178
1406	A Wireless Triboelectric Nanogenerator. 2018 , 8, 1702736	63
1405	Compressible hexagonal-structured triboelectric nanogenerators for harvesting tire rotation energy. 2018 , 18, 1-8	63
1404	Enhancing the performance of NaNbO ₃ triboelectric nanogenerators by dielectric modulation and electronegative modification. 2018 , 51, 015303	11
1403	Ultrafine Capillary-Tube Triboelectric Nanogenerator as Active Sensor for Microliquid Biological and Chemical Sensing. 2018 , 3, 1700229	44
1402	Experimental evaluation of Tusi couple based energy harvester for scavenging power from human motion. 2018 , 211, 05004	
1401	Triboelectric Effect of Polytetrafluoroethylene Fibers to Improve the Filtration Performance of Air-Purified Materials. 2018 , 13, 155892501801300	
1400	Sewing machine stitching of polyvinylidene fluoride fibers: programmable textile patterns for wearable triboelectric sensors. 2018 , 6, 22879-22888	50
1399	A self-powered brain-linked biosensing electronic-skin for actively tasting beverage and its potential application in artificial gustation. 2018 , 10, 19987-19994	18
1398	Highly porous composite aerogel based triboelectric nanogenerators for high performance energy generation and versatile self-powered sensing. 2018 , 10, 23131-23140	51

1397	. 2018 ,	11
1396	Nanofibers for Smart Textiles. 2018 , 39-90	1
1395	Nanogenerators for Smart Textiles. 2018 , 177-210	1
1394	A Self-Powered Breath Analyzer Based on PANI/PVDF Piezo-Gas-Sensing Arrays for Potential Diagnostics Application. 2018 , 10, 76	51
1393	Feasibility of Triboelectric Energy Harvesting and Load Sensing in Total Knee Replacement. 2018 ,	1
1392	Energy Harvesting Technologies for Achieving Self-Powered Wireless Sensor Networks in Machine Condition Monitoring: A Review. 2018 , 18,	90
1391	A New CAD Tool for Energy Optimization of Diagonal Motion Mode of Attached Electrode Triboelectric Nanogenerators. 2018 ,	1
1390	A comprehensive review on piezoelectric energy harvesting technology: Materials, mechanisms, and applications. 2018 , 5, 041306	316
1389	An 88% Efficiency 2.4W to 15.6W Triboelectric Nanogenerator Energy Harvesting System Based on a Single-Comparator Control Algorithm. 2018 ,	1
1388	Theoretical study on the oscillatory triboelectric charge density in a contact-mode triboelectric nanogenerator. 2018 , 133, 1	3
1387	A High Compressibility Pressure-Sensitive Structure Based on CB@PU Yarn Network. 2018 , 18,	5
1386	Next Generation Wireless Energy Aware Sensors for Internet of Things: A Review. 2018 ,	18
1385	Highly Flexible and Transparent Polyionic-Skin Triboelectric Nanogenerator for Biomechanical Motion Harvesting. 2018 , 9, 1803183	34
1384	A High Current Density Direct-Current Generator Based on a Moving van der Waals Schottky Diode. 2019 , 31, e1804398	47
1383	Self-Powered Wearable Pressure Sensors with Enhanced Piezoelectric Properties of Aligned P(VDF-TrFE)/MWCNT Composites for Monitoring Human Physiological and Muscle Motion Signs. 2018 , 8,	40
1382	Effects of Environmental Atmosphere on the Performance of ContactSeparation Mode TENG. 2018 , 4, 1800569	5
1381	Recent Progress in Micro-Supercapacitor Design, Integration, and Functionalization. 2018 , 3, 1800367	71
1380	Self-powered hybrid flexible nanogenerator and its application in bionic micro aerial vehicles. 2018 , 54, 10-16	25

1379	Efficient Delivery of Power Generated by a Rotating Triboelectric Nanogenerator by Conjunction of Wired and Wireless Transmissions Using Maxwell's Displacement Currents. 2018 , 8, 1802084	62
1378	A liquid metal-based triboelectric nanogenerator as stretchable electronics for safeguarding and self-powered mechanosensing. 2018 , 53, 863-870	41
1377	A Highly Sensitive Bending Sensor Based on Controlled Crack Formation Integrated with an Energy Harvesting Pyramid Layer. 2018 , 3, 1800307	12
1376	Fabric-based self-powered noncontact smart gloves for gesture recognition. 2018 , 6, 20277-20288	27
1375	Improving the Performance of the Mini 2000 Mass Spectrometer with a Triboelectric Nanogenerator Electrospray Ionization Source. 2018 , 3, 12229-12234	8
1374	Power computation for the triboelectric nanogenerator. 2018 , 54, 39-49	15
1373	Solution-Processed Ion-Free Organic Ratchets with Asymmetric Contacts. 2018 , 30, e1804794	8
1372	Nature of Power Generation and Output Optimization Criteria for Triboelectric Nanogenerators. 2018 , 8, 1802190	54
1371	The influence of substrate-dependent triboelectric charging of graphene on the electric potential generation by the flow of electrolyte droplets. 2018 , 54, 66-72	13
1370	Rapid Fabrication of Microporous BaTiO/PDMS Nanocomposites for Triboelectric Nanogenerators through One-step Microwave Irradiation. 2018 , 8, 14287	26
1369	The Renaissance of Luminescent Solar Concentrators: The Role of Inorganic Nanomaterials. 2018 , 8, 1801903	71
1368	"Genetically Engineered" Biofunctional Triboelectric Nanogenerators Using Recombinant Spider Silk. 2018 , 30, e1805722	53
1367	Versatile nanodot-patterned Gore-Tex fabric for multiple energy harvesting in wearable and aerodynamic nanogenerators. 2018 , 54, 209-217	35
1366	Photothermally tunable biodegradation of implantable triboelectric nanogenerators for tissue repairing. 2018 , 54, 390-399	81
1365	Direct Electricity Generation Mediated by Molecular Interactions with Low Dimensional Carbon Materials: A Mechanistic Perspective. 2018 , 8, 1802212	26
1364	Lipids: Source of Static Electricity of Regenerative Natural Substances and Nondestructive Energy Harvesting. 2018 , 30, e1804949	30
1363	Probing static discharge of polymer surfaces with nanoscale resolution. 2018 ,	
1362	Tribotronic bipolar junction transistor for mechanical frequency monitoring and use as touch switch. 2018 , 4, 25	11

1361	Zinc oxide for solar water splitting: A brief review of the material's challenges and associated opportunities. 2018 , 54, 409-428	74
1360	Flexible single-strand fiber-based woven-structured triboelectric nanogenerator for self-powered electronics. 2018 , 6, 101106	20
1359	Energy Conversion at the Cuticle of Living Plants. 2018 , 28, 1806689	27
1358	Ultra-Flexible and Large-Area Textile-Based Triboelectric Nanogenerators with a Sandpaper-Induced Surface Microstructure. 2018 , 11,	19
1357	A self-powered radio frequency (RF) transmission system based on the combination of triboelectric nanogenerator (TENG) and piezoelectric element for disaster rescue/relief. 2018 , 54, 331-340	17
1356	Towards self-powered sensing using nanogenerators for automotive systems. 2018 , 53, 1003-1019	50
1355	A Single Integrated 3D-Printing Process Customizes Elastic and Sustainable Triboelectric Nanogenerators for Wearable Electronics. 2018 , 28, 1805108	87
1354	Mechanosensation-Active Matrix Based on Direct-Contact Tribotronic Planar Graphene Transistor Array. <i>ACS Nano</i> , 2018 , 12, 9381-9389	16.7 36
1353	Enhanced output power of a freestanding ball-based triboelectric generator through the electrophorus effect. 2018 , 6, 18518-18524	2
1352	A Hierarchically Nanostructured Cellulose Fiber-Based Triboelectric Nanogenerator for Self-Powered Healthcare Products. 2018 , 28, 1805540	104
1351	An electrostatic discharge based needle-to-needle booster for dramatic performance enhancement of triboelectric nanogenerators. 2018 , 231, 1346-1353	21
1350	A Stretchable Yarn Embedded Triboelectric Nanogenerator as Electronic Skin for Biomechanical Energy Harvesting and Multifunctional Pressure Sensing. 2018 , 30, e1804944	278
1349	A self-improving triboelectric nanogenerator with improved charge density and increased charge accumulation speed. 2018 , 9, 3773	121
1348	Harsh-Environmental-Resistant Triboelectric Nanogenerator and Its Applications in Autodrive Safety Warning. 2018 , 8, 1801898	59
1347	Design of Bionic Cochlear Basilar Membrane Acoustic Sensor for Frequency Selectivity Based on Film Triboelectric Nanogenerator. 2018 , 13, 191	17
1346	Electric impulse spring-assisted contact separation mode triboelectric nanogenerator fabricated from polyaniline emeraldine salt and woven carbon fibers. 2018 , 53, 362-372	29
1345	Stretchable and Wearable Triboelectric Nanogenerator Based on Kinesio Tape for Self-Powered Human Motion Sensing. 2018 , 8,	27
1344	Polymer nanocomposite-enabled high-performance triboelectric nanogenerator with self-healing capability.. 2018 , 8, 30661-30668	20

1343	Screen-Printed Washable Electronic Textiles as Self-Powered Touch/Gesture Tribo-Sensors for Intelligent Human-Machine Interaction. <i>ACS Nano</i> , 2018 , 12, 5190-5196	16.7	271
1342	Remarkably enhanced triboelectric nanogenerator based on flexible and transparent monolayer titania nanocomposite. 2018 , 50, 140-147		68
1341	Flexible one-structure arched triboelectric nanogenerator based on common electrode for high efficiency energy harvesting and self-powered motion sensing. 2018 , 8, 045022		4
1340	Self-powered electrochromic devices with tunable infrared intensity. 2018 , 63, 795-801		22
1339	Self-Powered Multifunctional Motion Sensor Enabled by Magnetic-Regulated Triboelectric Nanogenerator. <i>ACS Nano</i> , 2018 , 12, 5726-5733	16.7	77
1338	Boosted electrochemical properties from the surface engineering of ultrathin interlaced Ni(OH) nanosheets with Co(OH) quantum dot modification. 2018 , 10, 10554-10563		35
1337	Waterproof and stretchable triboelectric nanogenerator for biomechanical energy harvesting and self-powered sensing. 2018 , 112, 203902		45
1336	Self-Healable, Stretchable, Transparent Triboelectric Nanogenerators as Soft Power Sources. <i>ACS Nano</i> , 2018 , 12, 6147-6155	16.7	175
1335	Disk-based triboelectric nanogenerator operated by rotational force converted from linear force by a gear system. 2018 , 50, 489-496		35
1334	Laser-Induced Molybdenum Carbide-Graphene Composites for 3D Foldable Paper Electronics. 2018 , 30, e1800062		91
1333	Humidity-Resistant, Fabric-Based, Wearable Triboelectric Energy Harvester by Treatment of Hydrophobic Self-Assembled Monolayers. 2018 , 3, 1800048		19
1332	Electrostatic assembly of ultraviolet-curable cellulose-coated silver nanowires as transparent electrodes for nanogenerator. 2018 , 11, 075002		7
1331	A self-powered triboelectric microfluidic system for liquid sensing. 2018 , 6, 14069-14076		34
1330	Inflammation-free and gas-permeable on-skin triboelectric nanogenerator using soluble nanofibers. 2018 , 51, 260-269		34
1329	Hybrid porous micro structured finger skin inspired self-powered electronic skin system for pressure sensing and sliding detection. 2018 , 51, 496-503		91
1328	Enhanced Performance of Microarchitected PTFE-Based Triboelectric Nanogenerator via Simple Thermal Imprinting Lithography for Self-Powered Electronics. 2018 , 10, 24181-24192		40
1327	AlN piezoelectric thin films for energy harvesting and acoustic devices. 2018 , 51, 146-161		77
1326	Visualizing the knowledge profile on self-powered technology. 2018 , 51, 250-259		10

1325	A powerful dual-responsive soft actuator and photo-to-electric generator based on graphene micro-gasbags for bioinspired applications. 2018 , 6, 5031-5038	31
1324	Autonomous Flexible Sensors for Health Monitoring. 2018 , 30, e1802337	101
1323	Self-Powered Multifunctional Transient Bioelectronics. 2018 , 14, e1802050	31
1322	Pulse sensor based on single-electrode triboelectric nanogenerator. 2018 , 280, 326-331	17
1321	Self-powered data erasing of nanoscale flash memory by triboelectricity. 2018 , 52, 63-70	9
1320	A triboelectric nanogenerator using silica-based powder for appropriate technology. 2018 , 280, 85-91	11
1319	Polymer tubes as carrier boats of thermosetting and powder materials based on 3D printing for triboelectric nanogenerator with microstructure. 2018 , 52, 134-141	32
1318	Implantable Energy-Harvesting Devices. 2018 , 30, e1801511	140
1317	High-performance piezoelectric-energy-harvester and self-powered mechanosensing using lead-free potassium sodium niobate flexible piezoelectric composites. 2018 , 6, 16439-16449	50
1316	Triboelectric nanogenerator based on rolling motion of beads for harvesting wind energy as active wind speed sensor. 2018 , 52, 256-263	46
1315	Visible Light-Driven Membraneless Photocatalytic Fuel Cell toward Self-Powered Aptasensing of PCB77. 2018 , 90, 9662-9666	40
1314	A Review of MEMS Scale Piezoelectric Energy Harvester. 2018 , 8, 645	41
1313	Flexible Triboelectric Nanogenerators. 2018 , 383-423	1
1312	Enhanced Power Output of a Triboelectric Nanogenerator using Poly(dimethylsiloxane) Modified with Graphene Oxide and Sodium Dodecyl Sulfate. 2018 , 10, 25263-25272	71
1311	SATURN. 2018 , 2, 1-28	28
1310	The Influence of Shape on the Output Potential of ZnO Nanostructures: Sensitivity to Parallel versus Perpendicular Forces. 2018 , 8,	4
1309	Large Scale Triboelectric Nanogenerator and Self-Powered Flexible Sensor for Human Sleep Monitoring. 2018 , 18,	29
1308	Triboelectric nanogenerator as a highly sensitive self-powered sensor for driver behavior monitoring. 2018 , 51, 721-727	66

1307	Correlating Material Transfer and Charge Transfer in Contact Electrification. 2018 , 122, 16154-16160	26
1306	Study of Long-Term Biocompatibility and Bio-Safety of Implantable Nanogenerators. 2018 , 51, 728-735	42
1305	A spring-assisted hybrid triboelectric-electromagnetic nanogenerator for harvesting low-frequency vibration energy and creating a self-powered security system. 2018 , 10, 14747-14754	55
1304	Nanogenerators Begin to Light Up: A Novel Poling-Free Piezoelectric System with Multicolor Photoluminescence as an Efficient Mechatronics Development Platform. 2018 , 5, 1800587	7
1303	Self-powered wearable sensing-textiles for real-time detecting environmental atmosphere and body motion based on surface-triboelectric coupling effect. 2018 , 29, 405504	23
1302	Integrating a Triboelectric Nanogenerator and a Zinc-Ion Battery on a Designed Flexible 3D Spacer Fabric. 2018 , 2, 1800150	54
1301	Sustainable oscillating triboelectric nanogenerator as omnidirectional self-powered impact sensor. 2018 , 50, 1-8	27
1300	Anomalous Charging Behavior of Inorganic Materials. 2018 , 122, 11414-11421	9
1299	A self-power-transmission and non-contact-reception keyboard based on a novel resonant triboelectric nanogenerator (R-TENG). 2018 , 50, 16-24	32
1298	Electron blocking layer-based interfacial design for highly-enhanced triboelectric nanogenerators. 2018 , 50, 9-15	64
1297	3D printing individualized triboelectric nanogenerator with macro-pattern. 2018 , 50, 126-132	43
1296	A Comprehensive Method to Taxonomize Mechanical Energy Harvesting Technologies. 2018 ,	3
1295	Triboelectric Nanogenerators Made of Porous Polyamide Nanofiber Mats and Polyimide Aerogel Film: Output Optimization and Performance in Circuits. 2018 , 10, 30596-30606	55
1294	Facile roughness fabrications and their roughness effects on electrical outputs of the triboelectric nanogenerator. 2018 , 27, 105026	18
1293	Self-Power Dynamic Sensor Based on Triboelectrification for Tilt of Direction and Angle. 2018 , 18,	7
1292	Photosynthetic Bioelectronic Sensors for Touch Perception, UV-Detection, and Nanopower Generation: Toward Self-Powered E-Skins. 2018 , 30, e1802290	51
1291	Theory of contact electrification: Optical transitions in two-level systems. 2018 , 52, 517-523	41
1290	Soft Electronically Functional Polymeric Composite Materials for a Flexible and Stretchable Digital Future. 2018 , 30, e1802560	88

1289	Structural and electrochemical properties of LiMn _{0.6} Fe _{0.4} PO ₄ as a cathode material for flexible lithium-ion batteries and self-charging power pack. 2018 , 52, 510-516	52
1288	A New Facile Route to Flexible and Semi-Transparent Electrodes Based on Water Exfoliated Graphene and their Single-Electrode Triboelectric Nanogenerator. 2018 , 30, e1802953	52
1287	A Self-Powered Smart Roller-Bearing Based on a Triboelectric Nanogenerator for Measurement of Rotation Movement. 2018 , 3, 1800219	9
1286	Harvest of ocean energy by triboelectric generator technology. 2018 , 5, 031303	9
1285	Triboelectric Series of 2D Layered Materials. 2018 , 30, e1801210	110
1284	Self-powered active antibacterial clothing through hybrid effects of nanowire-enhanced electric field electroporation and controllable hydrogen peroxide generation. 2018 , 53, 1-10	32
1283	Coaxial Hybrid Triboelectric Nanogenerator for Scavenging Multidirectional Mechanical Energy. 2018 , 4, 1800161	8
1282	Theoretical study of micro/nano roughness effect on water-solid triboelectrification with experimental approach. 2018 , 52, 315-322	42
1281	Highly durable piezoelectric energy harvester based on a PVDF flexible nanocomposite filled with oriented BaTi ₂ O ₅ nanorods with high power density. 2018 , 52, 391-401	78
1280	An air-cushion triboelectric nanogenerator integrated with stretchable electrode for human-motion energy harvesting and monitoring. 2018 , 53, 108-115	31
1279	Nanostructured polymer-based piezoelectric and triboelectric materials and devices for energy harvesting applications. 2018 , 51, 303001	62
1278	Triboelectrification on natural rose petal for harvesting environmental mechanical energy. 2018 , 50, 441-447	48
1277	Wind energy harvester based on coaxial rotatory freestanding triboelectric nanogenerators for self-powered water splitting. 2018 , 50, 562-570	59
1276	Energy Harvesting Research: The Road from Single Source to Multisource. 2018 , 30, e1707271	125
1275	Versatile Core-Shell Yarn for Sustainable Biomechanical Energy Harvesting and Real-Time Human-Interactive Sensing. 2018 , 8, 1801114	153
1274	Triboelectric effect based instantaneous self-powered wireless sensing with self-determined identity. 2018 , 51, 1-9	40
1273	Miniaturized springless hybrid nanogenerator for powering portable and wearable electronic devices from human-body-induced vibration. 2018 , 51, 61-72	43
1272	Actively Perceiving and Responsive Soft Robots Enabled by Self-Powered, Highly Extensible, and Highly Sensitive Triboelectric Proximity- and Pressure-Sensing Skins. 2018 , 30, e1801114	180

1271	Helical Nanofibrils of Block Copolymer for High-Performance Ammonia Sensors. 2018 , 10, 22504-22512	25
1270	Fiber-Type Solar Cells, Nanogenerators, Batteries, and Supercapacitors for Wearable Applications. 2018 , 5, 1800340	79
1269	Ferromagnetic nanoparticle-embedded hybrid nanogenerator for harvesting omnidirectional vibration energy. 2018 , 10, 12276-12283	15
1268	Overview of Triboelectric Nanogenerators. 2019 , 1-18	1
1267	Self-powered Flexible PDMS Channel Assisted Discrete Liquid Column Motion Based Triboelectric Nanogenerator (DLC-TENG) as Mechanical Transducer. 2019 , 6, 907-917	14
1266	Organic Photovoltaics: Toward Self-Powered Wearable Electronics. 2019 , 107, 2137-2154	32
1265	Triboelectric nanogenerators enabled sensing and actuation for robotics. 2019 , 65, 104005	34
1264	Ultrasensitive Charged Object Detection Based on Rubrene Crystal Sensor. 2019 , 66, 3139-3143	2
1263	Ion-Enhanced Field Emission Triboelectric Nanogenerator. 2019 , 9, 1901731	31
1262	Signal Output of Triboelectric Nanogenerator at Oil-Water-Solid Multiphase Interfaces and its Application for Dual-Signal Chemical Sensing. 2019 , 31, e1902793	64
1261	Fe -Doped Layered Double (Ni, Fe) Hydroxides as Efficient Electrocatalysts for Water Splitting and Self-Powered Electrochemical Systems. 2019 , 15, e1902551	60
1260	Recent Progress of Direct Ink Writing of Electronic Components for Advanced Wearable Devices. 2019 , 1, 1718-1734	54
1259	Vibration-Energy-Harvesting System: Transduction Mechanisms, Frequency Tuning Techniques, and Biomechanical Applications. 2019 , 4, 1900177	22
1258	A low-frequency, broadband and tri-hybrid energy harvester with septuple-stable nonlinearity-enhanced mechanical frequency up-conversion mechanism for powering portable electronics. 2019 , 64, 103943	14
1257	Entirely, Intrinsically, and Autonomously Self-Healable, Highly Transparent, and Superstretchable Triboelectric Nanogenerator for Personal Power Sources and Self-Powered Electronic Skins. 2019 , 29, 1904626	77
1256	Enhanced performance triboelectric nanogenerators based on solid polymer electrolytes with different concentrations of cations. 2019 , 64, 103960	26
1255	Optimization of Electrospinning Parameters for Electrospun Nanofiber-Based Triboelectric Nanogenerators. 2019 , 6, 731-739	13
1254	Transparent and stretchable bimodal triboelectric nanogenerators with hierarchical micro-nanostructures for mechanical and water energy harvesting. 2019 , 64, 103904	61

1253	The role of intermolecular forces in contact electrification on polymer surfaces and triboelectric nanogenerators. 2019 , 12, 2417-2421	39
1252	Seed Power: Natural Seed and Electrospun Poly(vinyl difluoride) (PVDF) Nanofiber Based Triboelectric Nanogenerators with High Output Power Density.. 2019 , 2, 3164-3170	14
1251	Design and Optimization of a MEMS Triboelectric Energy Harvester for Nano-sensor Applications. 2019 ,	3
1250	Sensors and Control Interface Methods Based on Triboelectric Nanogenerator in IoT Applications. 2019 , 7, 92745-92757	36
1249	A model for the triboelectric nanogenerator with inductive load and its energy boost potential. 2019 , 63, 103883	10
1248	Liquid-metal-elastomer foam for moldable multi-functional triboelectric energy harvesting and force sensing. 2019 , 64, 103912	23
1247	Mechanically Active Transducing Element Based on Solid-Liquid Triboelectric Nanogenerator for Self-Powered Sensing. 2019 , 6, 741-749	22
1246	Triboelectric nanogenerators made of polybenzazole aerogels as fire-resistant negative tribo-materials. 2019 , 64, 103900	17
1245	Wireless Power Transmission Enabled by a Triboelectric Nanogenerator via a Magnetic Interaction. 2019 , 7, 1900503	8
1244	Actuation and sensor integrated self-powered cantilever system based on TENG technology. 2019 , 64, 103920	40
1243	Waterproof, Breathable, and Antibacterial Self-Powered e-Textiles Based on Omniphobic Triboelectric Nanogenerators. 2019 , 29, 1904350	55
1242	Multifunctional Sensor Based on Translational-Rotary Triboelectric Nanogenerator. 2019 , 9, 1901124	58
1241	A Review of Human-Powered Energy Harvesting for Smart Electronics: Recent Progress and Challenges. 2019 , 6, 821-851	63
1240	Seesaw structured triboelectric nanogenerator with enhanced output performance and its applications in self-powered motion sensing. 2019 , 65, 103944	33
1239	Arbitrary waveform AC line filtering applicable to hundreds of volts based on aqueous electrochemical capacitors. 2019 , 10, 2855	37
1238	Power generation by a thermomagnetic engine by hybrid operation of an electromagnetic generator and a triboelectric nanogenerator. 2019 , 43, 5852-5863	13
1237	Shape-Adaptive, Self-Healable Triboelectric Nanogenerator with Enhanced Performances by Soft Solid-Solid Contact Electrification. <i>ACS Nano</i> , 2019 , 13, 8936-8945	16.7 75
1236	3D Printing of Ultralight Biomimetic Hierarchical Graphene Materials with Exceptional Stiffness and Resilience. 2019 , 31, e1902930	73

1235	Boost the Performance of Triboelectric Nanogenerators through Circuit Oscillation. 2019 , 9, 1900772	32
1234	High-Output and Bending-Tolerant Triboelectric Nanogenerator Based on an Interlocked Array of Surface-Functionalized Indium Tin Oxide Nanohelices. 2019 , 4, 1748-1754	30
1233	Amplitude-variable output characteristics of triboelectric-electret nanogenerators during multiple working cycles. 2019 , 63, 103856	7
1232	Wearable Woven Triboelectric Nanogenerator Utilizing Electrospun PVDF Nanofibers for Mechanical Energy Harvesting. 2019 , 10,	31
1231	Self-Powered Intelligent Water Meter for Electrostatic Scale Preventing, Rust Protection, and Flow Sensor in a Solar Heater System. 2019 , 11, 6396-6403	19
1230	Dual-Stimulus Smart Actuator and Robot Hand Based on a Vapor-Responsive PDMS Film and Triboelectric Nanogenerator. 2019 , 11, 42504-42511	17
1229	Controllable High-Speed Electrostatic Manipulation of Water Droplets on a Superhydrophobic Surface. 2019 , 31, e1905449	70
1228	Enhancing the Output Performance of Triboelectric Nanogenerator via Grating-Electrode-Enabled Surface Plasmon Excitation. 2019 , 9, 1902725	23
1227	Largely enhancing the output power and charging efficiency of electret generators using position-based auto-switch and passive power management module. 2019 , 66, 104202	10
1226	Oxygen-Rich Polymers as Highly Effective Positive Tribomaterials for Mechanical Energy Harvesting. <i>ACS Nano</i> , 2019 , 13, 12787-12797	16.7 27
1225	Simulation of high-output and lightweight sliding-mode triboelectric nanogenerators. 2019 , 66, 104115	7
1224	Hybrid energy harvester with bi-functional nano-wrinkled anti-reflective PDMS film for enhancing energies conversion from sunlight and raindrops. 2019 , 66, 104188	37
1223	Integrated flywheel and spiral spring triboelectric nanogenerator for improving energy harvesting of intermittent excitations/trigging. 2019 , 66, 104104	28
1222	A multifunctional and highly flexible triboelectric nanogenerator based on MXene-enabled porous film integrated with laser-induced graphene electrode. 2019 , 66, 104121	78
1221	Free Deformable Nanofibers Enhanced Tribo-Sensors for Sleep and Tremor Monitoring. 2019 , 1, 2301-2307	3
1220	On the Maximal Output Energy Density of Nanogenerators. <i>ACS Nano</i> , 2019 , 13, 13257-13263	16.7 24
1219	Regulating the output performance of triboelectric nanogenerator by using P(VDF-TrFE) Langmuir monolayers. 2019 , 66, 104090	24
1218	. 2019 ,	5

1217	Nighttime Reflectance Generation in the Visible Band of Satellites. 2019 , 11, 2087	11
1216	Characterization of Triboelectric Nanogenerators. 2019 , 59-76	0
1215	Meta-Analysis of Polymyositis and Dermatomyositis Microarray Data Reveals Novel Genetic Biomarkers. 2019 , 10,	2
1214	Applications in Internet of Things and Artificial Intelligence. 2019 , 359-378	2
1213	Viewpoint: Atomic-Scale Design Protocols toward Energy, Electronic, Catalysis, and Sensing Applications. 2019 , 58, 14939-14980	18
1212	Development of a triboelectric nanogenerator with enhanced electrical output performance by embedding electrically charged microparticles. 2019 , 1, 045005	14
1211	Portable Self-Charging Power System via Integration of a Flexible Paper-Based Triboelectric Nanogenerator and Supercapacitor. 2019 , 7, 18657-18666	44
1210	Dual-Tube Helmholtz Resonator-Based Triboelectric Nanogenerator for Highly Efficient Harvesting of Acoustic Energy. 2019 , 9, 1902824	59
1209	Smart Actuators. 2019 , 253-279	
1208	A Numerical Feasibility Study of Kinetic Energy Harvesting from Lower Limb Prosthetics. 2019 , 12, 3824	5
1207	Flexible and Stretchable Devices from Other Materials. 2019 , 183-202	1
1206	Microplasma-Discharge-Based Nitrogen Fixation Driven by Triboelectric Nanogenerator toward Self-Powered Mechano-Nitrogenous Fertilizer Supplier. 2019 , 29, 1904090	17
1205	Low Detection Limit and High Sensitivity Wind Speed Sensor Based on Triboelectrification-Induced Electroluminescence. 2019 , 6, 1901980	16
1204	Sozu. 2019 ,	14
1203	Willow-like portable triboelectric respiration sensor based on polyethylenimine-assisted CO ₂ capture. 2019 , 65, 103990	14
1202	Water-solid triboelectric nanogenerators: An alternative means for harvesting hydropower. 2019 , 115, 109366	44
1201	Ferroelectric-Polymer-Enabled Contactless Electric Power Generation in Triboelectric Nanogenerators. 2019 , 29, 1905816	24
1200	Highly Integrated Triboelectric Nanogenerator for Efficiently Harvesting Raindrop Energy. 2019 , 4, 1900608	23

1199	Preparation of anisotropic conductive graphene aerogel/polydimethylsiloxane composites as LEGO [®] modulars. 2019 , 112, 487-492	6
1198	. 2019 , 66, 4989-4996	4
1197	A Universal Strategy for Improving the Energy Transmission Efficiency and Load Power of Triboelectric Nanogenerators. 2019 , 9, 1901881	5
1196	Frequency-independent self-powered sensing based on capacitive impedance matching effect of triboelectric nanogenerator. 2019 , 65, 103984	26
1195	All edible materials derived biocompatible and biodegradable triboelectric nanogenerator. 2019 , 65, 104016	50
1194	Self-Powered Inhomogeneous Strain Sensor Enabled Joint Motion and Three-Dimensional Muscle Sensing. 2019 , 11, 34251-34257	27
1193	Highly Compressible and Sensitive Pressure Sensor under Large Strain Based on 3D Porous Reduced Graphene Oxide Fiber Fabrics in Wide Compression Strains. 2019 , 11, 37051-37059	46
1192	Electron transfer in nano-scale contact electrification: Atmosphere effect on the surface states of dielectrics. 2019 , 65, 103956	23
1191	Ionic liquid-based click-ionogels. 2019 , 5, eaax0648	113
1190	Butylated melamine formaldehyde as a durable and highly positive friction layer for stable, high output triboelectric nanogenerators. 2019 , 12, 3156-3163	78
1189	The Development of a Dynamic Model to Investigate the Dielectric Layer Thickness Effect for the Device Performance in Triboelectric Nanogenerators. 2019 , 66, 4478-4480	2
1188	Scaled-up Direct-Current Generation in MoS Multilayer-Based Moving Heterojunctions. 2019 , 11, 35404-35409	25
1187	A flexible self-charged power panel for harvesting and storing solar and mechanical energy. 2019 , 65, 104082	18
1186	A flexible piezoelectric nanogenerator using conducting polymer and silver nanowire hybrid electrodes for its application in real-time muscular monitoring system. 2019 , 299, 111575	15
1185	Single-Walled Carbon Nanotube Based Triboelectric Flexible Touch Sensors. 2019 , 48, 7411-7416	5
1184	A universal standardized method for output capability assessment of nanogenerators. 2019 , 10, 4428	53
1183	Harvesting ultralow frequency (2019, 65, 104011	26
1182	Multi-plate structured triboelectric nanogenerator based on cycloidal displacement for harvesting hydroenergy. 2019 , 33, 100576	16

1181	Self-powered flexible antibacterial tactile sensor based on triboelectric-piezoelectric-pyroelectric multi-effect coupling mechanism. 2019 , 66, 104105	32
1180	Matryoshka-inspired hierarchically structured triboelectric nanogenerators for wave energy harvesting. 2019 , 66, 104131	42
1179	Ionic polymer-metal composites actuator driven by the pulse current signal of triboelectric nanogenerator. 2019 , 66, 104139	21
1178	Output characteristics of thin-film flexible piezoelectric generators: A numerical and experimental investigation. 2019 , 255, 113856	9
1177	Milli-Watt Power Harvesting from Dual Triboelectric and Piezoelectric Effects of Multifunctional Green and Robust Reduced Graphene Oxide/P(VDF-TrFE) Composite Flexible Films. 2019 , 11, 38177-38189	32
1176	Motion recognition by a liquid filled tubular triboelectric nanogenerator. 2019 , 11, 495-503	10
1175	GLRX inhibition enhances the effects of gefitinib in EGFR-TKI-resistant NSCLC cells through FoxM1 signaling pathway. 2019 , 145, 861-872	6
1174	Control of triboelectric charges on common polymers by photoexcitation of organic dyes. 2019 , 10, 276	17
1173	A high output magneto-mechano-triboelectric generator enabled by accelerated water-soluble nano-bullets for powering a wireless indoor positioning system. 2019 , 12, 666-674	57
1172	A strategy to develop highly efficient TENGs through the dielectric constant, internal resistance optimization, and surface modification. 2019 , 7, 3979-3991	40
1171	Stretchable and transparent electroluminescent device driven by triboelectric nanogenerator. 2019 , 58, 410-418	43
1170	Controllable Tunneling Triboelectrification of Two-Dimensional Chemical Vapor Deposited MoS ₂ . 2019 , 9, 334	7
1169	Towards truly wearable energy harvesters with full structural integrity of fiber materials. 2019 , 58, 365-374	44
1168	Progress on triboelectric nanogenerator with stretchability, self-healability and bio-compatibility. 2019 , 59, 237-257	105
1167	Conformal fluorine coated carbon paper for an energy harvesting water wheel. 2019 , 58, 842-851	20
1166	Elastic Cu@PPy sponge for hybrid device with energy conversion and storage. 2019 , 58, 852-861	27
1165	Self-Powered Intracellular Drug Delivery by a Biomechanical Energy-Driven Triboelectric Nanogenerator. 2019 , 31, e1807795	94
1164	A calibration-free self-powered sensor for vital sign monitoring and finger tap communication based on wearable triboelectric nanogenerator. 2019 , 58, 536-542	72

1163	Self-powered multifunctional monitoring system using hybrid integrated triboelectric nanogenerators and piezoelectric microsensors. 2019 , 58, 612-623	58
1162	Power Generation from a Hybrid Generator (TENG-EMG) Run by a Thermomagnetic Engine Harnessing Low Temperature Waste Heat. 2019 , 12, 1774	13
1161	Nanogenerators as a Sustainable Power Source: State of Art, Applications, and Challenges. 2019 , 9,	47
1160	Triboelectric micromotors actuated by ultralow frequency mechanical stimuli. 2019 , 10, 2309	72
1159	Self-powered, on-demand transdermal drug delivery system driven by triboelectric nanogenerator. 2019 , 62, 610-619	61
1158	Application of Displacement-Current-Governed Triboelectric Nanogenerator in an Electrostatic Discharge Protection System for the Next-Generation Green Tire. <i>ACS Nano</i> , 2019 , 13, 8202-8212	16.7 13
1157	A bionic stretchable nanogenerator for underwater sensing and energy harvesting. 2019 , 10, 2695	254
1156	Recent Progress in Self-Powered Skin Sensors. 2019 , 19,	20
1155	Ionogel-based, highly stretchable, transparent, durable triboelectric nanogenerators for energy harvesting and motion sensing over a wide temperature range. 2019 , 63, 103847	120
1154	A Simple EPTV Setup to Estimate Single-Particle Charge of Triboelectrically Charged Particles. 2019 , 7, 323	3
1153	Optimization of triboelectric energy harvesting from falling water droplet onto wrinkled polydimethylsiloxane-reduced graphene oxide nanocomposite surface. 2019 , 174, 106923	23
1152	InP/Si Heterostructure for High-Current Hybrid Triboelectric/Photovoltaic Generation. 2019 , 2, 4395-4401	9
1151	Blue energy case study and analysis: Attack of chloride ions on chromia passive film on metallic electrode of nanogenerator. 2019 , 62, 103-110	10
1150	Towards optimized triboelectric nanogenerators. 2019 , 62, 530-549	54
1149	On the origin of contact-electrification. 2019 , 30, 34-51	453
1148	A self-powered multi-broadcasting wireless sensing system realized with an all-in-one triboelectric nanogenerator. 2019 , 62, 691-699	18
1147	Skin-contact actuated single-electrode protein triboelectric nanogenerator and strain sensor for biomechanical energy harvesting and motion sensing. 2019 , 62, 674-681	77
1146	Imaging of triboelectric charge distribution induced in polyimide film by using optical second-harmonic generation: Electronic charge distribution and dipole alignment. 2019 , 114, 233301	3

1145	Hybrid Tribo-Piezo-Electric Nanogenerator with Unprecedented Performance Based on Ferroelectric Composite Contacting Layers. 2019 , 2, 4027-4032	20
1144	Strong tribocatalytic dye decomposition through utilizing triboelectric energy of barium strontium titanate nanoparticles. 2019 , 63, 103832	38
1143	Energy harvesting from fluid flow using piezoelectrics: A critical review. 2019 , 143, 1826-1838	66
1142	Eccentric triboelectric nanosensor for monitoring mechanical movements. 2019 , 62, 348-354	11
1141	A visible light-induced self-powered aptasensing platform for kanamycin detection based on mediator-free photofuel cell. 2019 , 292, 129-135	17
1140	Laser-Induced Graphene Triboelectric Nanogenerators. <i>ACS Nano</i> , 2019 , 13, 7166-7174	16.7 97
1139	Treefrog Toe Pad-Inspired Micropatterning for High-Power Triboelectric Nanogenerator. 2019 , 29, 1901638	33
1138	Power management and effective energy storage of pulsed output from triboelectric nanogenerator. 2019 , 61, 517-532	88
1137	Double layered dielectric elastomer by vapor encapsulation casting for highly deformable and strongly adhesive triboelectric materials. 2019 , 62, 144-153	9
1136	Advances in portable electrospinning devices for in situ delivery of personalized wound care. 2019 , 11, 19166-19178	66
1135	High-Performance Hybridized Composites-Based Piezoelectric and Triboelectric Nanogenerators Based on BaTiO ₃ /PDMS Composite Film Modified with Ti _{0.8} O ₂ Nanosheets and Silver Nanopowders Cofillers. 2019 , 2, 3840-3850	47
1134	Transparent triboelectric sensor arrays using gravure printed silver nanowire electrodes. 2019 , 12, 066503	11
1133	Spiral Steel Wire-Based Fiber-Shaped Stretchable and Tailorable Triboelectric Nanogenerator for Wearable Power Source and Active Gesture Sensor. 2019 , 11, 39	77
1132	Ultrawide Sensing Range and Highly Sensitive Flexible Pressure Sensor Based on a Percolative Thin Film with a Knoll-like Microstructured Surface. 2019 , 11, 20500-20508	18
1131	Small-Sized, Lightweight, and Flexible Triboelectric Nanogenerator Enhanced by PTFE/PDMS Nanocomposite Electret. 2019 , 11, 20370-20377	41
1130	A Brief Review on E-skin and its Multifunctional Sensing Applications. 2019 , 4, 3-14	15
1129	Graphene-based stretchable/wearable self-powered touch sensor. 2019 , 62, 259-267	78
1128	Na ₂ Ti ₃ O ₇ Nanotubes as Anode Materials for Sodium-ion Batteries and Self-powered Systems. 2019 , 6, 3085-3090	13

1127	Survey of energy scavenging for wearable and implantable devices. 2019 , 178, 33-49	58
1126	Analysis of the Possibility of Using Energy Harvesters to Power Wearable Electronics in Clothing. 2019 , 2019, 1-13	8
1125	Optimization of a Piezoelectric Energy Harvester and Design of a Charge Pump Converter for CMOS-MEMS Monolithic Integration. 2019 , 19,	10
1124	Crepe cellulose paper and nitrocellulose membrane-based triboelectric nanogenerators for energy harvesting and self-powered human-machine interaction. 2019 , 61, 69-77	91
1123	Chitosan biopolymer-derived self-powered triboelectric sensor with optimized performance through molecular surface engineering and data-driven learning. 2019 , 1, 116-125	25
1122	Water-solid triboelectrification with self-repairable surfaces for water-flow energy harvesting. 2019 , 61, 454-461	49
1121	A tunable triboelectric wideband energy harvester. 2019 , 30, 1745-1756	7
1120	Quantum-mechanical model for optical transitions between solids. 2019 , 61, 311-317	3
1119	Vibration energy harvesting of multifunctional carbon fibre composite laminate structures. 2019 , 178, 1-10	26
1118	Improved performance of ferroelectric nanocomposite flexible film based triboelectric nanogenerator by controlling surface morphology, polarizability, and hydrophobicity. 2019 , 178, 765-771	44
1117	Enhanced performance of an expanded polytetrafluoroethylene-based triboelectric nanogenerator for energy harvesting. 2019 , 60, 903-911	9
1116	Wash-stable, oxidation resistant conductive cotton electrodes for wearable electronics.. 2019 , 9, 9198-9203	11
1115	Synergistic Effects of BaTiO ₃ /Multiwall Carbon Nanotube as Fillers on the Electrical Performance of Triboelectric Nanogenerator Based on Polydimethylsiloxane Composite Films. 2019 , 7, 1900101	15
1114	Triboelectric freestanding flapping film generator for energy harvesting from gas flow in pipes. 2019 , 28, 085002	8
1113	Waterproof Fabric-Based Multifunctional Triboelectric Nanogenerator for Universally Harvesting Energy from Raindrops, Wind, and Human Motions and as Self-Powered Sensors. 2019 , 6, 1801883	147
1112	Electron Transfer in Nanoscale Contact Electrification: Effect of Temperature in the Metal-Dielectric Case. 2019 , 31, e1808197	94
1111	Nitrogen-Doped NiCo ₂ O ₄ Microsphere as an Efficient Catalyst for Flexible Rechargeable Zinc-Air Batteries and Self-Charging Power System. 2019 , 2, 2296-2304	34
1110	Self-Powered and Soft Polymer MEMS/NEMS Devices. 2019 ,	1

1109	Recent Progress in Power Generation from Water/Liquid Droplet Interaction with Solid Surfaces. 2019 , 29, 1901069	92
1108	Recent advances in triboelectric nanogenerator based self-charging power systems. 2019 , 23, 617-628	105
1107	In Situ Observation of Current Generation in ZnO Nanowire Based Nanogenerators Using a CAFM Integrated into an SEM. 2019 , 11, 15183-15188	11
1106	Self-powered artificial synapses actuated by triboelectric nanogenerator. 2019 , 60, 377-384	73
1105	Post-fabrication modifications of thermoplastic polymeric nanofiber membranes with electroactive polymers for triboelectric nanogenerators. 2019 , 59, 697-704	12
1104	Enhanced-performance bio-triboelectric nanogenerator based on starch polymer electrolyte obtained by a cleanroom-free processing method. 2019 , 59, 610-618	37
1103	Wearable and Stretchable Triboelectric Nanogenerator Based on Crumpled Nanofibrous Membranes. 2019 , 11, 12452-12459	69
1102	All printable snow-based triboelectric nanogenerator. 2019 , 60, 17-25	27
1101	Triboelectric Energy Harvester performance enhanced by modifying the tribo-layer with cost-effective fabrication. 2019 , 6, 065514	3
1100	Nanoscale investigation of improved triboelectric properties of UV-irradiated ultrananocrystalline diamond films. 2019 , 11, 6120-6128	5
1099	A constant current triboelectric nanogenerator arising from electrostatic breakdown. 2019 , 5, eaav6437	140
1098	Fully-integrated motion-driven electroluminescence enabled by triboelectrification for customized flexible display. 2019 , 61, 158-164	17
1097	Investigation of diamond-like carbon films as a promising dielectric material for triboelectric nanogenerator. 2019 , 60, 875-885	22
1096	The high-speed ultraviolet photodetector of ZnO nanowire Schottky barrier based on the triboelectric-nanogenerator-powered surface-ionic-gate. 2019 , 60, 680-688	47
1095	Fully stretchable triboelectric nanogenerator for energy harvesting and self-powered sensing. 2019 , 61, 78-85	48
1094	Self-powered intelligent buoy system by water wave energy for sustainable and autonomous wireless sensing and data transmission. 2019 , 61, 1-9	83
1093	An Elastic Triboelectric Nanogenerator for Harvesting Random Mechanical Energy with Multiple Working Modes. 2019 , 4, 1900075	9
1092	Dynamics and performance evaluation of a novel tristable hybrid energy harvester for ultra-low level vibration resources. 2019 , 156, 123-136	33

1091	Flexible Triboelectric Nanogenerator Based on Paper, PET and Aluminum. 2019 ,	2
1090	Electrochromic sensors: Innovative devices enabled by spectroelectrochemical methods. 2019 , 15, 66-72	14
1089	MEMS-Based Vibrational Energy Harvesting and Conversion Employing Micro-/Nano-Magnetics. 2019 , 55, 1-15	12
1088	All-electrospun flexible triboelectric nanogenerator based on metallic MXene nanosheets. 2019 , 59, 268-276	174
1087	Hybrid Energy Harvesters: Toward Sustainable Energy Harvesting. 2019 , 31, e1802898	114
1086	Rational Structure Optimized Hybrid Nanogenerator for Highly Efficient Water Wave Energy Harvesting. 2019 , 9, 1802892	55
1085	Sustainable self-powered electro-Fenton degradation of organic pollutants in wastewater using carbon catalyst with controllable pore activated by EDTA-2Na. 2019 , 59, 346-353	34
1084	Expandable microsphere-based triboelectric nanogenerators as ultrasensitive pressure sensors for respiratory and pulse monitoring. 2019 , 59, 295-301	79
1083	An eco-friendly triboelectric hybrid nanogenerators based on graphene oxide incorporated polycaprolactone fibers and cellulose paper. 2019 , 59, 412-421	69
1082	Highly flexible, breathable, tailorable and washable power generation fabrics for wearable electronics. 2019 , 58, 750-758	112
1081	Versatile triboelectric nanogenerator with a hermetic structure by air supporting for multiple energy collection. 2019 , 58, 759-767	10
1080	A two-dimensional energy harvester with radially distributed piezoelectric array for vibration with arbitrary in-plane directions. 2019 , 30, 1094-1104	13
1079	On the force and energy conversion in triboelectric nanogenerators. 2019 , 59, 154-161	33
1078	Wearable piezoelectric nanogenerators based on reduced graphene oxide and in situ polarization-enhanced PVDF-TrFE films. 2019 , 54, 6401-6409	30
1077	Fire-retardant, self-extinguishing triboelectric nanogenerators. 2019 , 59, 336-345	30
1076	Wearable high-dielectric-constant polymers with core-shell liquid metal inclusions for biomechanical energy harvesting and a self-powered user interface. 2019 , 7, 7109-7117	31
1075	MEMS/NEMS-Enabled Energy Harvesters as Self-Powered Sensors. 2019 , 1-30	3
1074	First-Principles Insights into the Structural and Electronic Properties of Polytetrafluoroethylene in Its High-Pressure Phase (Form III). 2019 , 123, 6250-6255	5

1073	Development of a Tree-Shaped Hybrid Nanogenerator Using Flexible Sheets of Photovoltaic and Piezoelectric Films. 2019 , 12, 229	9
1072	Polyimide/Graphene Nanocomposite Foam-Based Wind-Driven Triboelectric Nanogenerator for Self-Powered Pressure Sensor. 2019 , 4, 1800723	59
1071	Continuous and scalable manufacture of amphibious energy yarns and textiles. 2019 , 10, 868	75
1070	Interfacial friction-induced electronic excitation mechanism for tribo-tunneling current generation. 2019 , 6, 1020-1026	46
1069	Metal-Organic Framework: A Novel Material for Triboelectric Nanogenerator-Based Self-Powered Sensors and Systems. 2019 , 9, 1803581	71
1068	Triboelectric performances of self-powered, ultra-flexible and large-area poly(dimethylsiloxane)/Ag-coated chinlon composites with a sandpaper-assisted surface microstructure. 2019 , 54, 7823-7833	6
1067	Gravity-Induced Self-Charging in Carbon Nanotube/Polymer Supercapacitors. 2019 , 123, 5249-5254	10
1066	[Conference information]. 2019 ,	
1065	High-voltage applications of the triboelectric nanogenerator Opportunities brought by the unique energy technology. 2019 , 6, 1	12
1064	Frontend Electronic System for Triboelectric Harvester in a Smart Knee Implant. 2019 ,	3
1063	Self-Powered Speed Sensor for Turbodrills Based on Triboelectric Nanogenerator. 2019 , 19,	7
1062	Properties of -O-Cu-O- Bridged Copper Phosphate-Based Thermal Insulation Materials. 2019 , 4, 19969-19976	2
1061	Dry-Coated Graphite onto Sandpaper for Triboelectric Nanogenerator as an Active Power Source for Portable Electronics. 2019 , 9,	10
1060	Direct-Current Generator Based on Dynamic PN Junctions with the Designed Voltage Output. 2019 , 22, 58-69	41
1059	The application of nanogenerators and piezoelectricity in osteogenesis. 2019 , 20, 1103-1117	26
1058	Triboelectric current generation in InP. 2019 , 1400, 066055	1
1057	Surface modification of triboelectric materials by neutral beams. 2019 , 7, 25066-25077	24
1056	Stretchable Hybrid Bilayered Luminescent Composite Based on the Combination of Strain-Induced and Triboelectrification-Induced Electroluminescence. 2019 , 4, 20470-20475	8

1055	Mechanical probing of ferroelectrics at the nanoscale. 2019 , 7, 12441-12462	10
1054	Cellulose/BaTiO ₃ aerogel paper based flexible piezoelectric nanogenerators and the electric coupling with triboelectricity. 2019 , 57, 450-458	121
1053	Triboiontronic Transistor of MoS. 2019 , 31, e1806905	54
1052	The Current Development and Future Outlook of Triboelectric Nanogenerators: A Survey of Literature. 2019 , 4, 1800588	57
1051	Natural wind-driven ultra-compact and highly efficient hybridized nanogenerator for self-sustained wireless environmental monitoring system. 2019 , 57, 256-268	54
1050	Piezo/triboelectric nanogenerators based on 2-dimensional layered structure materials. 2019 , 57, 680-691	72
1049	Starch-Cellulose-Based Triboelectric Nanogenerator Obtained by a Low-Cost Cleanroom-Free Processing Method. 2019 , 4, 1315-1320	9
1048	Strategies and progress on improving robustness and reliability of triboelectric nanogenerators. 2019 , 55, 203-215	51
1047	Role of a buried indium zinc oxide layer in the performance enhancement of triboelectric nanogenerators. 2019 , 55, 501-505	18
1046	Intelligently detecting and identifying liquids leakage combining triboelectric nanogenerator based self-powered sensor with machine learning. 2019 , 56, 277-285	48
1045	Effects of pulse charging on the performances of lithium-ion batteries. 2019 , 56, 555-562	23
1044	Textile-Based Triboelectric Nanogenerators for Self-Powered Wearable Electronics. 2019 , 29, 1804533	103
1043	Standardization of triboelectric nanogenerators: Progress and perspectives. 2019 , 56, 40-55	30
1042	Electrode-Free Triboelectric Nanogenerator for Harvesting Human Biomechanical Energy and as a Versatile Inartificial Physiological Monitor. 2019 , 7, 1800931	14
1041	Tribo-piezoelectricity in Janus transition metal dichalcogenide bilayers: A first-principles study. 2019 , 56, 33-39	37
1040	Renewable energy harvesting with the application of nanotechnology: A review. 2019 , 43, 1387-1410	72
1039	Progress in textile-based triboelectric nanogenerators for smart fabrics. 2019 , 56, 16-24	82
1038	Triboelectric Nanogenerator Boosts Smart Green Tires. 2019 , 29, 1806331	31

1037	Microwave-welded single-walled carbon nanotubes as suitable electrodes for triboelectric energy harvesting from biomaterials and bioproducts. 2019 , 56, 338-346	16
1036	Nanowire Electronics. 2019 ,	4
1035	Gas-enhanced triboelectric nanogenerator based on fully-enclosed structure for energy harvesting and sensing. 2019 , 55, 463-469	19
1034	Self-powered electronic skin based on the triboelectric generator. 2019 , 56, 252-268	147
1033	Electrically Responsive Materials and Devices Directly Driven by the High Voltage of Triboelectric Nanogenerators. 2019 , 29, 1806351	73
1032	Angle-shaped triboelectric nanogenerator for harvesting environmental wind energy. 2019 , 56, 269-276	84
1031	Micro-scale to nano-scale generators for energy harvesting: Self powered piezoelectric, triboelectric and hybrid devices. 2019 , 792, 1-33	80
1030	Triboelectric Nanogenerator: A Foundation of the Energy for the New Era. 2019 , 9, 1802906	592
1029	Phase inversion enabled energy scavenger: A multifunctional triboelectric nanogenerator as benzene monitoring system. 2019 , 282, 590-598	27
1028	Self-Powered Motion-Driven Triboelectric Electroluminescence Textile System. 2019 , 11, 5200-5207	51
1027	High humidity- and contamination-resistant triboelectric nanogenerator with superhydrophobic interface. 2019 , 57, 903-910	73
1026	Ingenious use of natural triboelectrification on the human body for versatile applications in walking energy harvesting and body action monitoring. 2019 , 57, 872-878	18
1025	More than energy harvesting [Combining triboelectric nanogenerator and flexible electronics technology for enabling novel micro-/nano-systems. 2019 , 57, 851-871	177
1024	Energy autonomous electronic skin. 2019 , 3,	168
1023	Two-dimensional triboelectric-electromagnetic hybrid nanogenerator for wave energy harvesting. 2019 , 58, 147-157	31
1022	Effect of post-annealing on microstructure and piezoelectric properties of ZnO thin film for triangular shaped vibration energy harvester. 2019 , 361, 123-129	10
1021	High power-output mechanical energy harvester based on flexible and transparent Au nanoparticle-embedded polymer matrix. 2019 , 55, 433-440	23
1020	Aerosol-Jet Printed Fine-Featured Triboelectric Sensors for Motion Sensing. 2019 , 4, 1800328	27

1019	Streaming Current Based Microtubular Enzymatic Sensor for Self-Powered Detection of Urea. 2019 , 4, 1800430	10
1018	Wearable and durable triboelectric nanogenerators via polyaniline coated cotton textiles as a movement sensor and self-powered system. 2019 , 55, 305-315	70
1017	Leaves based triboelectric nanogenerator (TENG) and TENG tree for wind energy harvesting. 2019 , 55, 260-268	104
1016	Evolution From Single to Hybrid Nanogenerator: A Contemporary Review on Multimode Energy Harvesting for Self-Powered Electronics. 2019 , 18, 21-36	30
1015	Self-Powered Tactile Sensor Array Systems Based on the Triboelectric Effect. 2019 , 29, 1806379	68
1014	Bladeless-Turbine-Based Triboelectric Nanogenerator for Fluid Energy Harvesting and Self-Powered Fluid Gauge. 2019 , 4, 1800560	17
1013	A Smart Knee Implant Using Triboelectric Energy Harvesters. 2019 , 28,	21
1012	Persistent energy harvesting in the harsh desert environment using a thermal resonance device: Design, testing, and analysis. 2019 , 235, 1514-1523	14
1011	Self-powered flexible electronics beyond thermal limits. 2019 , 56, 531-546	51
1010	Nanowires for Triboelectric Nanogenerators. 2019 , 353-365	1
1009	Pump drill-integrated triboelectric nanogenerator as a practical substitute for batteries of intermittently used devices. 2019 , 56, 612-618	6
1008	Nanogenerators for wearable bioelectronics and biodevices. 2019 , 52, 023002	23
1007	High Performance Triboelectric Nanogenerator by Hot Embossing on Self-Assembled Micro-Particles. 2019 , 21, 1700957	21
1006	Ultrafast lithium-ion capacitors for efficient storage of energy generated by triboelectric nanogenerators. 2020 , 24, 297-303	18
1005	Nano-templated films from waste optical discs for self-powered biosensor application and environmental surveillance. 2020 , 10, 199-212	
1004	Flexible Hybrid Sensors for Health Monitoring: Materials and Mechanisms to Render Wearability. 2020 , 32, e1902133	114
1003	Fiber/Fabric-Based Piezoelectric and Triboelectric Nanogenerators for Flexible/Stretchable and Wearable Electronics and Artificial Intelligence. 2020 , 32, e1902549	450
1002	Dual-ion batteries: The emerging alternative rechargeable batteries. 2020 , 25, 1-32	83

1001	A Nonmetallic Stretchable Nylon-Modified High Performance Triboelectric Nanogenerator for Energy Harvesting. 2020 , 30, 1907414	31
1000	Dielectric Modulated Cellulose Paper/PDMS-Based Triboelectric Nanogenerators for Wireless Transmission and Electropolymerization Applications. 2020 , 30, 1904536	71
999	Hydrogel-based hierarchically wrinkled stretchable nanofibrous membrane for high performance wearable triboelectric nanogenerator. 2020 , 67, 104206	52
998	Organosulfonate Counteranions-A Trapped Coordination Polymer as a High-Output Triboelectric Nanogenerator Material for Self-Powered Anticorrosion. 2020 , 26, 584-591	26
997	Materials Strategies and Device Architectures of Emerging Power Supply Devices for Implantable Bioelectronics. 2020 , 16, e1902827	46
996	An Integrated TriboelectricElectromagneticPiezoelectric Hybrid Energy Harvester Induced by a Multifunction Magnet for Rotational Motion. 2020 , 22, 1900872	11
995	Pulse mode of operation [A new booster of TEG, improving power up to X2.7 [to better fit IoT requirements. 2020 , 68, 104204	3
994	Self-powered control interface based on Gray code with hybrid triboelectric and photovoltaics energy harvesting for IoT smart home and access control applications. 2020 , 70, 104456	63
993	Two voltages in contact-separation triboelectric nanogenerator: From asymmetry to symmetry for maximum output. 2020 , 69, 104452	45
992	Hierarchical elastomer tuned self-powered pressure sensor for wearable multifunctional cardiovascular electronics. 2020 , 70, 104460	56
991	Poly(ionic liquid) hydrogel-based anti-freezing ionic skin for a soft robotic gripper. 2020 , 7, 919-927	135
990	Amphiphobic triboelectric nanogenerators based on silica enhanced thermoplastic polymeric nanofiber membranes. 2020 , 12, 4527-4536	18
989	A Survey of Tactile-Sensing Systems and Their Applications in Biomedical Engineering. 2020 , 2020, 1-17	24
988	Flexible and lead-free piezoelectric nanogenerator as self-powered sensor based on electrospinning BZT-BCT/P(VDF-TrFE) nanofibers. 2020 , 303, 111796	36
987	Conjunction of triboelectric nanogenerator with induction coils as wireless power sources and self-powered wireless sensors. 2020 , 11, 58	65
986	Enhancing the sensitivity of portable biosensors based on self-powered ion concentration polarization and electrical kinetic trapping. 2020 , 69, 104407	16
985	Stretchable shape-adaptive liquid-solid interface nanogenerator enabled by in-situ charged nanocomposite membrane. 2020 , 69, 104414	18
984	A universal and arbitrary tactile interactive system based on self-powered optical communication. 2020 , 69, 104419	36

983	Oleic-acid enhanced triboelectric nanogenerator with high output performance and wear resistance. 2020 , 69, 104435	27
982	A novel rhombic-shaped paper-based triboelectric nanogenerator for harvesting energy from environmental vibration. 2020 , 302, 111806	17
981	Flexible Janus Electrospun Nanofiber Films for Wearable Triboelectric Nanogenerator. 2020 , 5, 1900859	13
980	The Adhesion-Enhanced Contact Electrification and Efficiency of Triboelectric Nanogenerators. 2020 , 305, 1900638	9
979	High-output, transparent, stretchable triboelectric nanogenerator based on carbon nanotube thin film toward wearable energy harvesters. 2020 , 67, 104297	42
978	Fabricating mono-dispersed Fe ₃ O ₄ -SiO ₂ core-shell particles with help of triboelectrification. 2020 , 31, 332-338	1
977	Output power density enhancement of triboelectric nanogenerators via ferroelectric polymer composite interfacial layers. 2020 , 67, 104300	16
976	Ultrastable and High-Performance Silk Energy Harvesting Textiles. 2019 , 12, 12	21
975	The recent advances in self-powered medical information sensors. 2020 , 2, 212-234	55
974	Electrically conducting polyaniline smart coatings and thin films for industrial applications. 2020 , 585-617	5
973	Self-standing Substrates. 2020 ,	1
972	Energy harvesting from a novel contact-type dielectric elastomer generator. 2020 , 205, 112351	17
971	Lead-Free Bi _{0.5} (Na _{0.78} K _{0.22})TiO ₃ Nanoparticle Filler/Elastomeric Composite Films for Paper-Based Flexible Power Generators. 2020 , 6, 1900950	17
970	Large-Area Integrated Triboelectric Sensor Array for Wireless Static and Dynamic Pressure Detection and Mapping. 2020 , 16, e1906352	26
969	Self-Powered Tactile Sensor with Learning and Memory. <i>ACS Nano</i> , 2020 , 14, 1390-1398	16.7 64
968	3D double-faced interlock fabric triboelectric nanogenerator for bio-motion energy harvesting and as self-powered stretching and 3D tactile sensors. 2020 , 32, 84-93	100
967	Encapsulation of enzyme by metal-organic framework for single-enzymatic biofuel cell-based self-powered biosensor. 2020 , 68, 104308	68
966	Reversible Conversion between Schottky and Ohmic Contacts for Highly Sensitive, Multifunctional Biosensors. 2020 , 30, 1907999	39

965	A flexible electrokinetic power generator derived from paper and ink for wearable electronics. 2020 , 279, 115764	8
964	Radial piston triboelectric nanogenerator-enhanced cellulose fiber air filter for self-powered particulate matter removal. 2020 , 78, 105357	30
963	Nanoarchitectonics for Wide Bandgap Semiconductor Nanowires: Toward the Next Generation of Nanoelectromechanical Systems for Environmental Monitoring. 2020 , 7, 2001294	27
962	Progress in TENG technology: A journey from energy harvesting to nanoenergy and nanosystem. 2020 , 2, e12058	57
961	Wearable triboelectric nanogenerators for biomechanical energy harvesting. 2020 , 77, 105303	114
960	A Review and Perspective for the Development of Triboelectric Nanogenerator (TENG)-Based Self-Powered Neuroprosthetics. 2020 , 11,	14
959	Persistent, single-polarity energy harvesting from ambient thermal fluctuations using a thermal resonance device with thermal diodes. 2020 , 280, 115881	4
958	Theoretical maximum efficiency and higher power output in triboelectric nanogenerators. 2020 , 6, 2463-2475	10
957	Recent advances in hybrid perovskite nanogenerators. 2020 , 2, e12057	8
956	Programmed-triboelectric nanogenerators: A multi-switch regulation methodology for energy manipulation. 2020 , 78, 105241	24
955	Flexible nanofiber based triboelectric nanogenerators with high power conversion. 2020 , 162, 1428-1437	13
954	Poly[(Butyl acrylate)-co-(butyl methacrylate)] as Transparent Tribopositive Material for High-Performance Hydrogel-Based Triboelectric Nanogenerators. 2020 , 2, 5219-5227	7
953	A novel MEMS triboelectric energy harvester and sensor with a high vibrational operating frequency and wide bandwidth fabricated using UV-LIGA technique. 2020 , 313, 112175	7
952	Ballistic Energy Conversion with 78% Efficiency and System Integration. 2020 , 1, 100110	0
951	Carbon Dot-Based Composite Films for Simultaneously Harvesting Raindrop Energy and Boosting Solar Energy Conversion Efficiency in Hybrid Cells. <i>ACS Nano</i> , 2020 , 14, 10359-10369	16.7 23
950	Encapsulated Triboelectric-Electromagnetic Hybrid Generator for a Sustainable Blue Energy Harvesting and Self-Powered Oil Spill Detection. 2020 , 2, 3100-3108	19
949	Emerging triboelectric nanogenerators for ocean wave energy harvesting: state of the art and future perspectives. 2020 , 13, 2657-2683	78
948	Exploring the bifunctional properties of paper-like carbyne-enriched carbon for maintenance-free self-powered systems. 2020 , 1, 1644-1652	3

947	A Triboelectric Closed-Loop Sensing System for Authenticity Identification of Paper-Based Artworks. 2020 , 5, 2000194	2
946	Triboelectric Nanogenerator versus Piezoelectric Generator at Low Frequency (. 2020 , 23, 101286	37
945	Highly Robust and Self-Powered Electronic Skin Based on Tough Conductive Self-Healing Elastomer. <i>ACS Nano</i> , 2020 , 14, 9066-9072	16.7 47
944	High-efficiency super-elastic liquid metal based triboelectric fibers and textiles. 2020 , 11, 3537	87
943	Facile Fabrication of Self-Similar Hierarchical Micro-Nano Structures for Multifunctional Surfaces via Solvent-Assisted UV-Lasering. 2020 , 11,	5
942	Improved Output Voltage of a Nanogenerator with 3D Fabric. 2020 , 20, 4666-4670	2
941	A mini-review: How reliable is the drop casting technique?. 2020 , 121, 106867	52
940	Direct-current energy generators from polypyrrole-coated fabric/metal Schottky diodes with considerably improved output. 2020 , 8, 24166-24174	10
939	Self-Powered Memory Systems. 2020 , 2, 1669-1690	10
938	Cationic Covalent Organic Frameworks for Fabricating an Efficient Triboelectric Nanogenerator. 2020 , 2, 1691-1697	18
937	An acid and alkali-resistant triboelectric nanogenerator. 2020 , 12, 23225-23233	13
936	Biomechanical energy harvest based on textiles used in self-powering clothing. 2020 , 15, 155892502096735	5
935	Leverage Surface Chemistry for High-Performance Triboelectric Nanogenerators. 2020 , 8, 577327	21
934	Robust Triboelectric Generators by All-In-One Commercial Rubbers. 2020 , 2, 4054-4064	5
933	Triboelectric-nanogenerator-inspired light-emitting diode-in-capacitors for flexible operation in high-voltage and wireless drive modes. 2020 , 78, 105281	11
932	A Single-Mode, Self-Adapting, and Self-Powered Mechanoreceptor Based on a Potentiometric-Triboelectric Hybridized Sensing Mechanism for Resolving Complex Stimuli. 2020 , 32, e2005970	20
931	Rationally patterned electrode of direct-current triboelectric nanogenerators for ultrahigh effective surface charge density. 2020 , 11, 6186	63
930	Hybridized Nanogenerators for Multifunctional Self-Powered Sensing: Principles, Prototypes, and Perspectives. 2020 , 23, 101813	16

929	Triboelectric Nanogenerator Powered Electrowetting-on-Dielectric Actuator for Concealed Aquatic Microbots. <i>ACS Nano</i> , 2020 , 14, 15394-15402	16.7	12
928	Triboelectric Energy Harvesting Response of Different Polymer-Based Materials. 2020 , 13,		7
927	ZIF-62: a mixed linker metal-organic framework for triboelectric nanogenerators. 2020 , 8, 17817-17825		24
926	Enhanced output in polyvinylidene fluoride nanofibers based triboelectric nanogenerator by using printer ink as nano-fillers. 2020 , 77, 105178		17
925	Harnessing silicon facet-dependent conductivity to enhance the direct-current produced by a sliding Schottky diode triboelectric nanogenerator. 2020 , 78, 105210		20
924	Woven Fabric Triboelectric Nanogenerator for Biomotion Energy Harvesting and as Self-Powered Gait-Recognizing Socks. 2020 , 13, 4119		5
923	Respiration-driven triboelectric nanogenerators for biomedical applications. 2020 , 2, e12045		21
922	Multifunctional Protein Nanowire Humidity Sensors for Green Wearable Electronics. 2020 , 6, 2000721		19
921	Triboelectric effect of surface morphology controlled laser induced graphene. 2020 , 8, 19822-19832		9
920	Recent progress in the development of portable high voltage source based on triboelectric nanogenerator. 2020 , 1, 66-76		3
919	Superhydrophobic Cellulose Paper-Based Triboelectric Nanogenerator for Water Drop Energy Harvesting. 2020 , 5, 2000454		50
918	Triboelectric nanogenerator based on intercalated Al layer within fluttering dielectric film. 2020 , 77, 105184		6
917	Electromagnetic Pulse Powered by a Triboelectric Nanogenerator with Applications in Accurate Self-Powered Sensing and Security. 2020 , 5, 2000368		8
916	Ink-Based Additive Nanomanufacturing of Functional Materials for Human-Integrated Smart Wearables. 2020 , 2, 2000117		9
915	Effects of Surface Functional Groups on Electron Transfer at Liquid-Solid Interfacial Contact Electrification. <i>ACS Nano</i> , 2020 , 14, 10733-10741	16.7	45
914	Aerogel based nanogenerators: Production methods, characterizations and applications. 2020 , 44, 11088-11119		
913	A magnetic levitation-based tristable hybrid energy harvester for scavenging energy from low-frequency structural vibration. 2020 , 221, 110789		11
912	A triboelectric nanogenerator based on human fingernail to harvest and sense body energy. 2020 , 232, 111408		4

911	Energy Harvesting from Breeze Wind (0.75 m/s) Using Ultra-Stretchable Triboelectric Nanogenerator. 2020 , 10, 2001770	51
910	Self-Powered Wireless Monitoring of Obstacle Position and State in Gas Pipe via Flow-Driven Triboelectric Nanogenerators. 2020 , 5, 2000466	17
909	Self-Assembly of Porous Microstructured Polydimethylsiloxane Films for Wearable Triboelectric Nanogenerators. 2020 , 305, 2000276	7
908	A metal-electrode-free, fully integrated, soft triboelectric sensor array for self-powered tactile sensing. 2020 , 6, 59	22
907	Ab Initio Study of Polytetrafluoroethylene Defluorination for Tribocharging Applications. 2020 , 2, 5129-5134	2
906	Recent advances in wearable textile-based triboelectric generator systems for energy harvesting from human motion. 2020 , 2, e12054	26
905	Rolling membrane powered by low-temperature steam as a new approach to generate mechanical energy. 2020 , 10, 16573	
904	Investigation on the Impact-Based Energy Conversion of a Dielectric Elastomer Membrane. 2020 , 8, 180261-180272	
903	A Piezoelectric-Transducer-Biased 3-D Photosensitive Thin-Film Transistor as a Dual-Mode Wearable Energy Harvester. 2020 , 41, 1368-1371	1
902	Stretchable Triboelectric Nanogenerators for Energy Harvesting and Motion Monitoring. 2020 , 1, 109-116	6
901	Other Hybridized Nanogenerators. 2020 , 97-132	
900	Recent Advances in Self-Powered Tribo-/Piezoelectric Energy Harvesters: All-In-One Package for Future Smart Technologies. 2020 , 30, 2004446	58
899	Enhanced charge storage properties of ultrananocrystalline diamond films by contact electrification-induced hydrogenation.. 2020 , 10, 33189-33195	1
898	Tribo-catalytic degradation of organic pollutants through bismuth oxyiodate triboelectrically harvesting mechanical energy. 2020 , 78, 105290	27
897	Wherever there is a dynamic touch, there is electromagnetic field discovery for power generation. 2020 , 78, 105314	7
896	Seamlessly knitted stretchable comfortable textile triboelectric nanogenerators for E-textile power sources. 2020 , 78, 105327	31
895	Highly stretchable and transparent triboelectric nanogenerator based on multilayer structured stable electrode for self-powered wearable sensor. 2020 , 78, 105385	23
894	Sustainable and Biodegradable Wood Sponge Piezoelectric Nanogenerator for Sensing and Energy Harvesting Applications. <i>ACS Nano</i> , 2020 , 14, 14665-14674	16.7 49

893	Fully bio-based epoxidized soybean oil thermosets for high performance triboelectric nanogenerators. 2020 , 22, 6912-6921	4
892	A Multifunctional Triboelectric Nanogenerator Based on Conveyor Belt Structure for High-Precision Vortex Detection. 2020 , 5, 2000377	2
891	Boosting output performance of sliding mode triboelectric nanogenerator by charge space-accumulation effect. 2020 , 11, 4277	74
890	The Evolution of Flexible Electronics: From Nature, Beyond Nature, and To Nature. 2020 , 7, 2001116	61
889	Enhancement of Triboelectric Charge Density by Chemical Functionalization. 2020 , 30, 2004714	63
888	Tailored Poly(vinylidene fluoride--trifluoroethylene) Crystal Orientation for a Triboelectric Nanogenerator through Epitaxial Growth on a Chitin Nanofiber Film. 2020 , 20, 6651-6659	16
887	Solar Energy Harvesting with Photosynthetic Pigment-Protein Complexes. 2020 ,	0
886	Precision Manufacturing of a Linear Fiber Assembly with Axially Varying Compositions and Structures by Using Computer Numerically Controlled Ring Spinning. 2020 , 21, 2675-2684	3
885	Network Topology Optimization of Triboelectric Nanogenerators for Effectively Harvesting Ocean Wave Energy. 2020 , 23, 101848	12
884	Nylon-11 nanowires for triboelectric energy harvesting. 2020 , 2, e12063	12
883	Triboelectric energy harvester with large bandwidth under harmonic and random excitations. 2020 , 6, 2490-2502	11
882	Chemically Functionalized Cellulose Nanofibrils for Improving Triboelectric Charge Density of a Triboelectric Nanogenerator. 2020 , 8, 18678-18685	23
881	Walking energy harvesting and self-powered tracking system based on triboelectric nanogenerators. 2020 , 11, 1590-1595	8
880	High precision epidermal radio frequency antenna via nanofiber network for wireless stretchable multifunction electronics. 2020 , 11, 5629	24
879	A Review of Solar Energy Harvesting Electronic Textiles. 2020 , 20,	13
878	Graphene Oxide Papers in Nanogenerators for Self-Powered Humidity Sensing by Finger Tapping. 2020 , 10, 7312	27
877	A theoretical modeling analysis for triboelectrification controlled light emitting diodes. 2020 , 74, 104874	5
876	Triboelectricity-based self-charging droplet capacitor for harvesting low-level ambient energy. 2020 , 74, 104795	9

875	Skin-attachable and biofriendly chitosan-diatom triboelectric nanogenerator. 2020 , 75, 104904	41
874	Artificial Tactile Perceptual Neuron with Nociceptive and Pressure Decoding Abilities. 2020 , 12, 26258-26266	30
873	Experimental study of resistive load for impedance matching of triboelectric energy harvester fabricated with patterned polydimethylsiloxane polymer layer. 2020 , 2, 1	0
872	Multimodal Hybrid Piezoelectric-Electromagnetic Insole Energy Harvester Using PVDF Generators. 2020 , 9, 635	13
871	Zero-writing-power tribotronic MoS ₂ touch memory. 2020 , 75, 104936	6
870	Charge-trapping-blocking layer for enhanced triboelectric nanogenerators. 2020 , 75, 105011	42
869	Schottky-Contacted Nanowire Sensors. 2020 , 32, e2000130	56
868	Hybrid energy cells based on triboelectric nanogenerator: From principle to system. 2020 , 75, 104980	39
867	A Highly Porous Nonwoven Thermoplastic Polyurethane/Polypropylene-Based Triboelectric Nanogenerator for Energy Harvesting by Human Walking. 2020 , 12,	11
866	Multifunctional Water Drop Energy Harvesting and Human Motion Sensor Based on Flexible Dual-Mode Nanogenerator Incorporated with Polymer Nanotubes. 2020 , 12, 24030-24038	25
865	Nanomaterials for cathodic protection of metals. 2020 , 9-18	0
864	Exploring the theoretical and experimental optimization of high-performance triboelectric nanogenerators using microarchitected silk cocoon films. 2020 , 74, 104882	27
863	Portland Cement-TiO ₂ triboelectric nanogenerator for robust large-scale mechanical energy harvesting and instantaneous motion sensor applications. 2020 , 74, 104802	20
862	Triboelectric nanogenerator for healthcare and biomedical applications. 2020 , 33, 100882	40
861	Bulk Pt/CsPbBr ₃ Schottky junctions for charge boosting in robust triboelectric nanogenerators. 2020 , 8, 11966-11975	14
860	Self-Powered Sensors and Systems Based on Nanogenerators. 2020 , 20,	95
859	Mechanically Asymmetrical Triboelectric Nanogenerator for Self-Powered Monitoring of In Vivo Microscale Weak Movement. 2020 , 10, 2000827	25
858	Graphene decorated carbonized cellulose fabric for physiological signal monitoring and energy harvesting. 2020 , 8, 12665-12673	34

857	Silk and Silk Composite Aerogel-Based Biocompatible Triboelectric Nanogenerators for Efficient Energy Harvesting. 2020 , 59, 12399-12408	15
856	Photosupercapacitors: A perspective of planar and flexible dual functioning devices. 2020 , 9, e377	2
855	New Self-Healing Triboelectric Nanogenerator Based on Simultaneous Repair Friction Layer and Conductive Layer. 2020 , 12, 30390-30398	35
854	Time-resolved open-circuit conductive atomic force microscopy for direct electromechanical characterisation. 2020 , 31, 404003	7
853	Heterostructures formed through abraded van der Waals materials. 2020 , 11, 3047	14
852	Identifying Physical and Chemical Contributions to Friction: A Comparative Study of Chemically Inert and Active Graphene Step Edges. 2020 , 12, 30007-30015	4
851	Metal-Free Catalyst with Large Carbon Defects for Efficient Direct Overall Water Splitting in Air at Room Pressure. 2020 , 12, 30280-30288	15
850	Flexible hybrid piezo/triboelectric energy harvester with high power density workable at elevated temperatures. 2020 , 8, 12003-12012	21
849	Synergistic enhancement of coaxial nanofiber-based triboelectric nanogenerator through dielectric and dispersity modulation. 2020 , 75, 104894	29
848	Optogenetic brain neuromodulation by stray magnetic field via flash-enhanced magneto-mechano-triboelectric nanogenerator. 2020 , 75, 104951	23
847	Dielectric control of porous polydimethylsiloxane elastomers with Au nanoparticles for enhancing the output performance of triboelectric nanogenerators.. 2020 , 10, 21309-21317	12
846	Multifunctional smart electronic skin fabricated from two-dimensional like polymer film. 2020 , 75, 105044	14
845	Triboelectric Nanogenerator Enhanced Schottky Nanowire Sensor for Highly Sensitive Ethanol Detection. 2020 , 20, 4968-4974	38
844	Self-powered Biosensor Big Data Intelligent Information Processing System for Real-time Motion Monitoring. 2020 , 646, 500-506	3
843	Polymer nanocomposite meshes for flexible electronic devices. 2020 , 107, 101279	44
842	"Waste to Wealth": Lignin as a Renewable Building Block for Energy Harvesting/Storage and Environmental Remediation. 2020 , 13, 2807-2827	25
841	Fish Gelatin Based Triboelectric Nanogenerator for Harvesting Biomechanical Energy and Self-Powered Sensing of Human Physiological Signals. 2020 , 12, 16442-16450	51
840	Expanding the versatility of poly(dimethylsiloxane) through polymeric modification: an effective approach for improving triboelectric energy harvesting performance. 2020 , 29, 035024	8

839	A wearable noncontact free-rotating hybrid nanogenerator for self-powered electronics. 2020 , 2, 1191-1200	43
838	Textile Triboelectric Nanogenerators for Energy Harvesting. 2020 , 67-86	3
837	A flexible semitransparent dual-electrode hydrogel based triboelectric nanogenerator with tough interfacial bonding and high energy output. 2020 , 8, 5752-5760	16
836	A novel post-processed surface modified double-network polymer layer for a triboelectric nanogenerator. 2020 , 8, 6328-6336	14
835	Self-powered triboelectric/pyroelectric multimodal sensors with enhanced performances and decoupled multiple stimuli. 2020 , 72, 104671	24
834	Triboelectric Nanogenerator (TENG) Sparking an Energy and Sensor Revolution. 2020 , 10, 2000137	168
833	Smart Textiles for Electricity Generation. 2020 , 120, 3668-3720	349
832	Self-Powered Active Spherical Triboelectric Sensor for Fluid Velocity Detection. 2020 , 19, 230-235	18
831	The Relationship between Static Charge and Shape. 2020 , 6, 704-714	3
830	Self-Powered Wind Sensor Based on Triboelectric Generator with Curved Flap Array for Multi-Directional Wind Speed Detection. 2020 ,	1
829	Piezoelectricity of 2D materials and its applications toward mechanical energy harvesting. 2020 , 1-38	6
828	Theoretical investigation of air breakdown direct current triboelectric nanogenerator. 2020 , 116, 263901	10
827	Effects of Technical Parameters on Properties of Wear-Resistant Triboelectric Materials. 2020 , 1533, 022128	
826	Mechanoplastic Tribotronic Floating-Gate Neuromorphic Transistor. 2020 , 30, 2002506	42
825	Nest-inspired nanosponge-Cu woven mesh hybrid for ultrastable and high-power triboelectric nanogenerator. 2020 , 71, 104561	21
824	Continuous rotation of eccentric triboelectric nanosensor under low frequency periodic vibration. 2020 , 76, 105075	4
823	Graphene/Polymer Hybrid Fiber with Enhanced Fracture Elongation for Thermoelectric Energy Harvesting. 2020 , 3, 6165-6171	15
822	The tribovoltaic effect and electron transfer at a liquid-semiconductor interface. 2020 , 76, 105070	48

821	Self-powered monolithic accelerometer using a photonic gate. 2020 , 76, 104950	11
820	Measuring Piezoelectric Output-Fact or Friction?. 2020 , 32, e2002979	22
819	A Self-Powered and Low Pressure Loss Gas Flowmeter Based on Fluid-Elastic Flutter Driven Triboelectric Nanogenerator. 2020 , 20,	9
818	Flexible Drug Release Device Powered by Triboelectric Nanogenerator. 2020 , 30, 1909886	37
817	Cylindrical Direct-Current Triboelectric Nanogenerator with Constant Output Current. 2020 , 10, 1904227	22
816	Anisotropic nanogenerator for anticounterfeiting and information encrypted transmission. 2020 , 71, 104572	14
815	Environmental energy harvesting based on triboelectric nanogenerators. 2020 , 31, 242001	54
814	A Thermochromic Hydrogel for Camouflage and Soft Display. 2020 , 8, 2000031	12
813	Meter-scale fabrication of water-driven triboelectric nanogenerator based on in-situ grown layered double hydroxides through a bottom-up approach. 2020 , 71, 104646	19
812	Violin String Inspired Core-Sheath Silk/Steel Yarns for Wearable Triboelectric Nanogenerator Applications. 2020 , 2, 24-33	18
811	Enhanced output performance and stability of triboelectric nanogenerators by employing silane-based self-assembled monolayers. 2020 , 8, 4542-4548	12
810	Wire-based triboelectric resonator for a self-powered crack monitoring system. 2020 , 71, 104615	3
809	Nanostructured Self-assemblies from Silicon-containing Hybrid Copolymers. 2020 , 97-117	2
808	High-Performance Triboelectric Nanogenerators Based on a Mechanoradical Mechanism. 2020 , 8, 3865-3871	9
807	Power generation from ambient humidity using protein nanowires. 2020 , 578, 550-554	169
806	Flexible microcavity surface triboelectric nanogenerator for harvesting power in different operating modes. 2020 , 59, SIJ01	1
805	Stretchable, Transparent, and Thermally Stable Triboelectric Nanogenerators Based on Solvent-Free Ion-Conducting Elastomer Electrodes. 2020 , 30, 1909252	54
804	Review of nonlinear vibration energy harvesting: Duffing, bistability, parametric, stochastic and others. 2020 , 31, 921-944	34

803	Manufacturing routes toward flexible and smart energy harvesters and sensors based on functional nanomaterials. 2020 , 381-437	1
802	. 2020 , 20, 7556-7568	9
801	The piezotronic effect in InGaN/GaN quantum-well based microwire for ultrasensitive strain sensor. 2020 , 72, 104660	21
800	Graphene-Based Thermoelectrics. 2020 , 3, 2224-2239	31
799	Wind-Driven Radial-Engine-Shaped Triboelectric Nanogenerators for Self-Powered Absorption and Degradation of NO. <i>ACS Nano</i> , 2020 , 14, 2751-2759	16.7 31
798	Inductor-Free Output Multiplier for Power Promotion and Management of Triboelectric Nanogenerators toward Self-Powered Systems. 2020 , 12, 5892-5900	19
797	Stretchable, Biocompatible, and Multifunctional Silk Fibroin-Based Hydrogels toward Wearable Strain/Pressure Sensors and Triboelectric Nanogenerators. 2020 , 12, 6442-6450	147
796	Dynamical charge transfer model for high surface charge density triboelectric nanogenerators. 2020 , 70, 104513	15
795	Recent progress on flexible nanogenerators toward self-powered systems. 2020 , 2, 318-340	43
794	Structurally engineered textile-based triboelectric nanogenerator for energy harvesting application. 2020 , 55, 5177-5189	12
793	Large-Area Triboelectric Nanogenerator Mass Spectrometry: Expanded Coverage, Double-Bond Pinpointing, and Supercharging. 2020 , 31, 727-734	4
792	Industrial Separation of Insulating Particles. 2020 , 663-689	
791	"Self-Matched" Tribo/Piezoelectric Nanogenerators Using Vapor-Induced Phase-Separated Poly(vinylidene fluoride) and Recombinant Spider Silk. 2020 , 32, e1907336	33
790	Theoretical study of superlubric nanogenerators with superb performances. 2020 , 70, 104494	12
789	Polymer-based Nanogenerator for Biomedical Applications. 2020 , 36, 41-54	7
788	Material aspects of triboelectric energy generation and sensors. 2020 , 12,	88
787	Analysis of mechanical deformation effect on the voltage generation of a vertical contact mode triboelectric generator. 2020 , 30,	5
786	Smart Soft Actuators and Grippers Enabled by Self-Powered Tribo-Skins. 2020 , 5, 1901075	25

785	A novel triboelectric nanogenerator based on carbon fiber reinforced composite lamina and as a self-powered displacement sensor. 2020 , 224, 111231	17
784	A self-powered character recognition device based on a triboelectric nanogenerator. 2020 , 70, 104534	10
783	Development of Highly Durable Sliding Triboelectric Nanogenerator Using Diamond-Like Carbon Films. 2020 , 15, 89-97	7
782	Scalable, washable and lightweight triboelectric-energy-generating fibers by the thermal drawing process for industrial loom weaving. 2020 , 74, 104805	15
781	Vibration analysis of piezoelectric sandwich nanobeam with flexoelectricity based on nonlocal strain gradient theory. 2020 , 41, 859-880	10
780	Flexible sliding sensor for simultaneous monitoring deformation and displacement on a robotic hand/arm. 2020 , 73, 104764	26
779	Advancements of wave energy converters based on power take off (PTO) systems: A review. 2020 , 204, 107248	66
778	Piezoelectric Nanogenerators Based on Helical Carbon Materials and Polyvinylidene difluoride/Trifluoroethylene Hybrids with Enhanced Energy-Harvesting Performance. 2020 , 8, 1901249	7
777	Sweep-type triboelectric linear motion sensor with staggered electrode. 2020 , 37, 100713	11
776	Triboelectric nanogenerator for entire stroke energy harvesting with bidirectional gear transmission. 2020 , 72, 104726	28
775	A self-charging device with bionic self-cleaning interface for energy harvesting. 2020 , 73, 104738	30
774	A triboelectric nanogenerator design for harvesting environmental mechanical energy from water mist. 2020 , 73, 104765	18
773	Continuous and Scalable Manufacture of Hybridized Nano-Micro Triboelectric Yarns for Energy Harvesting and Signal Sensing. <i>ACS Nano</i> , 2020 , 14, 4716-4726	16.7 69
772	Semiconductor glass with superior flexibility and high room temperature thermoelectric performance. 2020 , 6, eaaz8423	46
771	Omnidirectional Triboelectric Nanogenerator Operated by Weak Wind Towards a Self-Powered Anemoscope. 2020 , 11,	13
770	An In-Plane Sliding Triboelectric Nanogenerator with a Multielectrode Array for Self-Powered Dynamic Addressing and Trajectory Tracking. 2020 , 8, 2000155	4
769	Energy Conversion by Phase Transformation in the Small-Temperature-Difference Regime. 2020 , 50, 283-318	6
768	Mechanical Regulation Triboelectric Nanogenerator with Controllable Output Performance for Random Energy Harvesting. 2020 , 10, 2000627	32

767	A triboelectric nanogenerator energy harvesting system based on load-aware control for input power from 2.4mW to 15.6mW. 2020 , 74, 104839	5
766	Self-boosted power generation of triboelectric nanogenerator with glass transition by friction heat. 2020 , 74, 104840	13
765	Biohybrid Triboelectric Nanogenerator for Label-Free Pharmacological Fingerprinting in Cardiomyocytes. 2020 , 20, 4043-4050	11
764	Realizing the Capability of Negatively Charged Graphene Oxide in the Presence of Conducting Polyaniline for Performance Enhancement of Tribopositive Material of Triboelectric Nanogenerator. 2020 , 6, 2000034	10
763	Multifunctional Mechanical Metamaterials with Embedded Triboelectric Nanogenerators. 2020 , 30, 2001720	17
762	Electro-blown spinning driven by cylindrical rotating triboelectric nanogenerator and its applications for fabricating nanofibers. 2020 , 19, 100631	5
761	Boron Nitride Nanotube-Based Contact Electrification-Assisted Piezoelectric Nanogenerator as a Kinematic Sensor for Detecting the Flexion/Extension Motion of a Robot Finger. 2020 , 5, 1577-1585	16
760	Water-mediated crystalhydrate-polymer composite as a phase-change electrolyte. 2020 , 11, 1843	15
759	Anodic bonding driven by the pulse current signal of triboelectric nanogenerator. 2020 , 73, 104759	2
758	Highly Wearable, Breathable, and Washable Sensing Textile for Human Motion and Pulse Monitoring. 2020 , 12, 19965-19973	67
757	Optimal Stopping Time of a Portfolio Selection Problem with Multi-assets. 2021 , 9, 163-179	
756	Piezoelectric boron nitride nanosheets for high performance energy harvesting devices. 2021 , 80, 105561	16
755	Microconformal electrode-dielectric integration for flexible ultrasensitive robotic tactile sensing. 2021 , 80, 105580	22
754	Self-charging power system for distributed energy: beyond the energy storage unit. 2020 , 12, 34-49	27
753	High Quality Electret Based Triboelectric Nanogenerator for Boosted and Reliable Electrical Output Performance. 2021 , 8, 125-137	13
752	Functional Fibers and Fabrics for Soft Robotics, Wearables, and Human-Robot Interface. 2021 , 33, e2002640	94
751	Electron transfer in the contact-electrification between corrugated 2D materials: A first-principles study. 2021 , 79, 105386	12
750	Theoretical analysis of sensor properties of contact-separation mode nanogenerator-based sensors. 2021 , 79, 105450	2

749	Sandwich as a triboelectric nanogenerator. 2021 , 79, 105411	10
748	Deformable, resilient, and mechanically-durable triboelectric nanogenerator based on recycled coffee waste for wearable power and self-powered smart sensors. 2021 , 79, 105405	18
747	Detection of driving actions on steering wheel using triboelectric nanogenerator via machine learning. 2021 , 79, 105455	13
746	Research methods of contact electrification: Theoretical simulation and experiment. 2021 , 79, 105501	9
745	Advances in triboelectric nanogenerators for biomedical sensing. 2021 , 171, 112714	90
744	Revisiting the bioelectrochemical system based biosensor for organic sensing and the prospect on constructed wetland-microbial fuel cell. 2021 , 264, 128532	12
743	Active matching circuit to enhance the generated power of triboelectric nanogenerators. 2021 , 80, 105588	1
742	A synchronous piezoelectric-triboelectric-electromagnetic hybrid generator for harvesting vibration energy. 2021 , 5, 212-218	7
741	Wood-cellulose-fiber-based functional materials for triboelectric nanogenerators. 2021 , 81, 105637	48
740	Polymer chemistry underpinning materials for triboelectric nanogenerators (TENGs): Recent trends. 2021 , 142, 110163	12
739	Hybrid PDMS-TiO ₂ -stainless steel textiles for triboelectric nanogenerators. 2021 , 417, 127974	4
738	Nanogenerator-based hybrid systems for smart textiles. 2021 , 83-92	0
737	Stretchable and Shape-Adaptable Triboelectric Nanogenerator Based on Biocompatible Liquid Electrolyte for Biomechanical Energy Harvesting and Wearable Human-Machine Interaction. 2021 , 31, 2007221	27
736	Visible light mediated self-powered sensing based on target induced recombination of photogenerated carriers. 2021 , 407, 124765	5
735	A self-powered 2D-material sensor unit driven by a SnSe piezoelectric nanogenerator. 2021 , 9, 4716-4723	10
734	Degradable and Fully Recyclable Dynamic Thermoset Elastomer for 3D-Printed Wearable Electronics. 2021 , 31, 2009799	50
733	Tribo-informatics: Concept, architecture, and case study. 2021 , 9, 642-655	11
732	Lead-free BiFeO ₃ film on glass fiber fabric: Wearable hybrid piezoelectric-triboelectric nanogenerator. 2021 , 47, 3573-3579	14

731	Hybrid energy harvesting technology: From materials, structural design, system integration to applications. 2021 , 137, 110473	63
730	. 2021 , 68, 210-223	9
729	Polysaccharide-based triboelectric nanogenerators: A review. 2021 , 251, 117055	27
728	Integrated energy storage system based on triboelectric nanogenerator in electronic devices. 2021 , 15, 238-250	54
727	Fluid-Based Triboelectric Nanogenerators: A Review of Current Status and Applications. 2021 , 8, 1043-1060	9
726	Patchable and Implantable 2D Nanogenerator. 2021 , 17, e1903519	15
725	Emerging Pyroelectric Nanogenerators to Convert Thermal Energy into Electrical Energy. 2021 , 17, e1903469	41
724	High-performance carbon nanotube electronic ratchets.	3
723	High output achieved by sliding electrification of an electrospun nano-grating. 2021 , 13, 17417-17427	1
722	Recent Progress in Flexible Microstructural Pressure Sensors toward Human-Machine Interaction and Healthcare Applications.. 2021 , 5, e2001041	29
721	Triboelectric nanogenerators for scavenging biomechanical energy: fabrication process to its self-powered applications. 2021 , 145-169	0
720	Self-powered flexible tactile sensors. 2021 , 245-261	
719	Touch Detection Technologies. 2021 , 19-89	
718	Energy Harvesters for Wearable Electronics and Biomedical Devices. 2021 , 6, 2000771	14
717	Advances in self-powered chemical sensing a triboelectric nanogenerator. 2021 , 13, 2065-2081	36
716	Emerging beyond-graphene elemental 2D materials for energy and catalysis applications. 2021 , 50, 10983-11036	36
715	High-temperature piezoelectric conversion using thermally stabilized electrospun polyacrylonitrile membranes. 2021 , 9, 20395-20404	5
714	Natural silk for energy and sensing applications: a review. 2021 , 19, 2141-2155	6

713	Recent developments of hybrid piezotriboelectric nanogenerators for flexible sensors and energy harvesters. 2021 , 3, 5465-5486	6
712	Air-gap embedded triboelectric nanogenerator surface modification of non-contact layer using sandpapers. 2021 , 13, 8837-8847	7
711	Nanogenerators: An introduction. 2021 , 47-59	
710	Characterization of a packaged triboelectric harvester under simulated gait loading for total knee replacement.. 2021 , 26, 2967-2976	3
709	Electrodynamics of Free- and Bound-Charge Electricity Generators Using Impressed Sources. 2021 , 15,	3
708	A review on electrospun magnetic nanomaterials: methods, properties and applications. 2021 , 9, 9042-9082	11
707	Advances in self-powered triboelectric pressure sensors. 2021 , 9, 20100-20130	23
706	Materials-Related Strategies for Highly Efficient Triboelectric Energy Generators. 2021 , 11, 2003802	24
705	Interfacial Design and Assembly for Flexible Energy Electrodes with Highly Efficient Energy Harvesting, Conversion, and Storage. 2021 , 11, 2002969	7
704	Self-powered environmental monitoring gas sensors: Piezoelectric and triboelectric approaches. 2021 , 463-489	3
703	Anisotropic conductive networks for multidimensional sensing. 2021 , 8, 2615-2653	7
702	Expecting the unexpected: high pressure crystallization significantly boosts up triboelectric outputs of microbial polyesters. 2021 , 9, 6306-6315	0
701	An electrostatically self-assembled fluorinated molecule as a surface modification layer for a high-performance and stable triboelectric nanogenerator. 2021 , 9, 4230-4239	3
700	Stretchable negative Poisson's ratio yarn for triboelectric nanogenerator for environmental energy harvesting and self-powered sensor. 2021 , 14, 955-964	27
699	Wearable triboelectric sensors for biomedical monitoring and human-machine interface. 2021 , 24, 102027	48
698	Emerging Materials for Water-Enabled Electricity Generation. 2021 , 3, 193-209	18
697	Self-powered ammonia synthesis under ambient conditions via N discharge driven by Tesla turbine triboelectric nanogenerators. 2021 , 7, 7	8
696	Graphene-based devices for smart cities. 2021 , 491-514	

695	Power Supplies for electronic textiles. 2021 , 435-445	
694	Design and analysis of a compliant 3D printed energy harvester housing for knee implants. 2021 , 88, 59-68	5
693	Real-time monitoring for road-base quality with the aid of buried piezoelectric sensors. 1045389X2199088	1
692	The Interface between Nanoenergy and Self-Powered Electronics. 2021 , 21,	1
691	Self-Powered Wearable Biosensors. 2021 , 2, 184-197	42
690	Light-Powered Microrobots: Challenges and Opportunities for Hard and Soft Responsive Microswimmers. 2021 , 3, 2000256	19
689	Self-Healing Soft Sensors: From Material Design to Implementation. 2021 , 33, e2004190	35
688	A Contact-Mode Triboelectric Nanogenerator for Energy Harvesting from Marine Pipe Vibrations. 2021 , 21,	6
687	Recent developments in self-powered smart chemical sensors for wearable electronics. 2021 , 14, 3669	23
686	High-Performance Triboelectric Devices via Dielectric Polarization: A Review. 2021 , 16, 35	18
685	Wearable and Implantable Electroceuticals for Therapeutic Electrostimulations. 2021 , 8, 2004023	24
684	A Highly Efficient and Durable Kirigami Triboelectric Nanogenerator for Rotational Energy Harvesting. 2021 , 14, 1120	9
683	Fluorescent pressure sensor based on TiO ₂ /carbon quantum dots bifunctional nanocomposite film. 2021 , 32, 6487-6497	1
682	Electronic charge transfer during metal/SiO ₂ contact: Insight from density functional theory. 2021 , 129, 065304	5
681	A Self-Powered Vector Angle/Displacement Sensor Based on Triboelectric Nanogenerator. 2021 , 12,	6
680	Functional Polymer Nanocomposite for Triboelectric Nanogenerators. 2021 , 189-210	
679	Tailored Hydrogen-Free Carbon Films by Tuning the sp ² /sp ³ Configuration. 2021 , 3, 1771-1779	2
678	Flexible pressure sensors with microstructures. 2021 , 2, 1874	1

677	Construction of porous polymer films on rGO coated cotton fabric for self-powered pressure sensors in human motion monitoring. 2021 , 28, 4439-4453	3
676	Synergetic Enhancement of Triboelectric Nanogenerators Performance Based on Patterned Membranes Fabricated by Phase-Inversion Process. 2021 , 218, 2000829	1
675	Yo-Yo Inspired Triboelectric Nanogenerator. 2021 , 14, 1798	3
674	Electronic View of Triboelectric Nanogenerator for Energy Harvesting: Mechanisms and Applications. 2021 , 2, 2000087	1
673	Discovering and Dissecting Mechanically Excited Luminescence of Mn ²⁺ Activators via Matrix Microstructure Evolution. 2021 , 31, 2100221	6
672	InGaN-based nanowires development for energy harvesting and conversion applications. 2021 , 129, 121103	3
671	Eggshell membrane and expanded polytetrafluoroethylene piezoelectric-enhanced triboelectric bio-nanogenerators for energy harvesting. 2021 , 45, 11053-11064	9
670	Production and applications of flexible/wearable triboelectric nanogenerator (TENGS). 2021 , 273, 116692	7
669	Smart Wearable Sensors Based on Triboelectric Nanogenerator for Personal Healthcare Monitoring. 2021 , 12,	19
668	Stretchable and Healable Conductive Elastomer Based on PEDOT:PSS/Natural Rubber for Self-Powered Temperature and Strain Sensing. 2021 , 13, 14599-14611	31
667	Self-Powered Room-Temperature Ethanol Sensor Based on Brush-Shaped Triboelectric Nanogenerator. 2021 , 2021, 8564780	8
666	Super-Durable and Highly Efficient Electrostatic Induced Nanogenerator Circulation Network Initially Charged by a Triboelectric Nanogenerator for Harvesting Environmental Energy. <i>ACS Nano</i> , 2021 , 15, 6949-6960	16.7 12
665	MXenes for memristive and tactile sensory systems. 2021 , 8, 011316	8
664	Energy Harvesting in Nanosystems: Powering the Next Generation of the Internet of Things. 2021 , 3,	1
663	Fabrication and Transformation of K _{0.5} Na _{0.5} Nb _{0.9} Sb _{0.1} O ₃ Nanostructures to Nanofibers in PVDF-HFP Matrix for Flexible Nanogenerator-Based Thermal Management in Heat Pipes. 2021 , 60, 4290-4299	0
662	Textile Triboelectric Nanogenerators with Diverse 3D-Spacer Fabrics for Improved Output Voltage. 2021 , 10, 937	4
661	Coil-levitated hybrid generator for mechanical energy harvesting and wireless temperature and vibration monitoring. 2021 , 64, 1325-1334	1
660	A piezoelectric power generator based on axisymmetrically distributed PVDF array for two-dimension vibration energy harvesting and direction sensing. 2021 , 44, 101001	6

659	Soft Robotic Manipulation System Capable of Stiffness Variation and Dexterous Operation for Safe Human-Machine Interactions. 2021 , 6, 2100084	12
658	The development of power take-off technology in wave energy converter systems: A Review. 2021 , 739, 012081	2
657	Simultaneously Harvesting Friction and Solar Energy via Organic/Silicon Heterojunction with High Direct-Current Generation. 2021 , 11, 2100578	8
656	A High Sensitivity Self-Powered Wind Speed Sensor Based on Triboelectric Nanogenerators (TENGs). 2021 , 21,	4
655	Microscale Schottky superlubric generator with high direct-current density and ultralong life. 2021 , 12, 2268	22
654	A Fully Self-Healing Piezoelectric Nanogenerator for Self-Powered Pressure Sensing Electronic Skin. 2021 , 2021, 9793458	3
653	Stackable triboelectric nanogenerators for self-powered marine monitoring buoy**. 2021 ,	
652	Fully Fabric-Based Triboelectric Nanogenerators as Self-Powered Human-Machine Interactive Keyboards. 2021 , 13, 103	29
651	Concealed Wireless Warning Sensor Based on Triboelectrification and Human-Plant Interactive Induction. 2021 , 2021, 9870936	7
650	Metal-Amino Acid Nanofibers based Triboelectric Nanogenerator for Self-Powered Thioacetamide Sensor. 2021 , 13, 18887-18896	5
649	Electret Nanogenerators for Self-Powered, Flexible Electronic Pianos. 2021 , 13, 4142	0
648	Lead-Free KNbO ₃ Nanoblocks Improved Triboelectric Nanogenerator with High Output Performance and Self-Powered Anticorrosion System. 2021 , 6, 3169-3173	2
647	Gravity triboelectric nanogenerator for the steady harvesting of natural wind energy. 2021 , 82, 105740	40
646	A high-performance triboelectric-electromagnetic hybrid wind energy harvester based on rotational tapered rollers aiming at outdoor IoT applications. 2021 , 24, 102300	19
645	Experimental Study of Parametric Dependency of ZnO Nanorods-based Vibration Sensor. 1-9	1
644	Graphene Deposition on Glass Fibers by Triboelectrification. 2021 , 11, 3123	1
643	Wearable and self-powered sensors made by triboelectric nanogenerators assembled from antibacterial bromobutyl rubber. 2021 , 82, 105769	14
642	Design and Optimization Principles of Cylindrical Sliding Triboelectric Nanogenerators. 2021 , 12,	4

641	Moderately Transparent Chitosan-PVA Blended Membrane for Strong Mechanical Stiffness and as a Robust Bio-Material Energy Harvester Through Contact-Separation Mode TENG. 2021 , 3,	2
640	Towards smart cities powered by nanogenerators: Bibliometric and machine learningBased analysis. 2021 , 83, 105844	11
639	Demonstration of friction-based triboelectric nanogenerator and integration in a power-balanced fully autonomous system. 2021 , 83, 105796	3
638	A self-powered multi-functional sensor based on triboelectric nanogenerator for monitoring states of rotating motion. 2021 , 83, 105857	13
637	A stretchable triboelectric nanogenerator made of silver-coated glass microspheres for human motion energy harvesting and self-powered sensing applications. 2021 , 12, 402-412	2
636	Antibacterial ferroelectric materials: Advancements and future directions. 2021 , 97, 95-110	7
635	Super-stretchable multi-sensing triboelectric nanogenerator based on liquid conductive composite. 2021 , 83, 105823	16
634	A self-powered laminated fabric sensor for human motion detection and heart-rate monitoring based on PPy/Al Schottky contact. 109963622110218	1
633	High performance of multi-layered triboelectric nanogenerators for mechanical energy harvesting. 2021 , 222, 119949	14
632	Nodding Duck Structure Multi-track Directional Freestanding Triboelectric Nanogenerator toward Low-Frequency Ocean Wave Energy Harvesting. <i>ACS Nano</i> , 2021 , 15, 9412-9421	16.7 22
631	Ag Nanoparticle-Incorporated Natural Rubber for Mechanical Energy Harvesting Application. 2021 , 26,	4
630	A triboelectric nanogenerator based on waste polyvinyl chloride for Morse code generator. 2021 , 322, 112633	2
629	Recent progress in silk fibroin-based flexible electronics. 2021 , 7, 35	25
628	Assistive devices for the people with disabilities enabled by triboelectric nanogenerators. 2021 , 4, 034015	6
627	Transparent Triboelectric Nanogenerator Based on Thermoplastic Polyurethane Films. 2021 , 21, 3072-3080	1
626	Stearic Acid Reinforced Triboelectric Nanogenerator with High Output Performance and Anti-wear Characteristics for Self-powered Anticorrosion System. 2021 , 50, 844-848	2
625	A self-powered vibration sensor for downhole drilling tools based on hybrid electromagnetic-triboelectric nanogenerator. 2021 , 92, 055003	2
624	High-Linearity, Response-Range Adjustable Force Sensors Based on a Yarn/Film/Spacer Triboelectric Device Design. 2021 , 6, 2100203	6

623	3D printed triboelectric nanogenerator self-powered electro-Fenton degradation of orange IV and crystal violet system using N-doped biomass carbon catalyst with tunable catalytic activity. 2021 , 83, 105824	6
622	Alternate-Layered MXene Composite Film-Based Triboelectric Nanogenerator with Enhanced Electrical Performance. 2021 , 16, 81	3
621	Magnetic switch structured triboelectric nanogenerator for continuous and regular harvesting of wind energy. 2021 , 83, 105851	35
620	The Power of Silk Technology for Energy Applications. 2100519	4
619	A Tubular Flexible Triboelectric Nanogenerator with a Superhydrophobic Surface for Human Motion Detecting. 2021 , 21,	5
618	Nanogenerators and Self-Powered Microdevices Applied to Wireless Electrical Stimulation at Cell Level. 2021 ,	0
617	Water-Wave Driven Route Avoidance Warning System for Wireless Ocean Navigation. 2021 , 11, 2101116	19
616	Triboelectric nanogenerator based self-powered sensor for artificial intelligence. 2021 , 84, 105887	47
615	Nanoporous PVDF Hollow Fiber Employed Piezo-Tribo Nanogenerator for Effective Acoustic Harvesting. 2021 , 13, 26981-26988	9
614	Acid and Alkali-Resistant Textile Triboelectric Nanogenerator as a Smart Protective Suit for Liquid Energy Harvesting and Self-Powered Monitoring in High-Risk Environments. 2021 , 31, 2102963	22
613	Effect of Photo-Excitation on Contact Electrification at Liquid-Solid Interface. <i>ACS Nano</i> , 2021 , 15, 10609-10617	11
612	Integration of cryogenic trap to gas chromatography-sulfur chemiluminescent detection for online analysis of hydrogen gas for volatile sulfur compounds. 2021 , 32, 3440-3440	2
611	Effects of interfacial acid-base on the performance of contact-separation mode triboelectric nanogenerator. 2021 , 20, 100686	1
610	Bioinspired soft caterpillar robot with ultra-stretchable bionic sensors based on functional liquid metal. 2021 , 84, 105896	12
609	Contact electrification behaviors of micro-patterned polydimethylsiloxane. 2021 , 79, 81	0
608	Two-Dimensional MOF Modulated Fiber Nanogenerator for Effective Acoustoelectric Conversion and Human Motion Detection. 2021 , 37, 7107-7117	9
607	Flexible Textile Direct-Current Generator Based on the Tribovoltaic Effect at Dynamic Metal-Semiconducting Polymer Interfaces. 2021 , 6, 2442-2450	23
606	Recent progress of flexible/wearable self-charging power units based on triboelectric nanogenerators. 2021 , 84, 105880	26

605	Bioinspired designs and biomimetic applications of triboelectric nanogenerators. 2021 , 84, 105865	18
604	Double helix triboelectric nanogenerator for self-powered weight sensors. 2021 , 323, 112650	3
603	Visualizing Positive and Negative Charges of Triboelectricity Generated on Polyimide Film. 2021 , E104.C, 170-175	1
602	Thin, soft, skin-integrated foam-based triboelectric nanogenerators for tactile sensing and energy harvesting. 2021 , 20, 100657	18
601	Piezoelectric Nanogenerators Derived Self-Powered Sensors for Multifunctional Applications and Artificial Intelligence. 2021 , 31, 2102983	30
600	Enhancing output performance of direct-current triboelectric nanogenerator under controlled atmosphere. 2021 , 84, 105864	16
599	Dielectric Modulated Glass Fiber Fabric-Based Single Electrode Triboelectric Nanogenerator for Efficient Biomechanical Energy Harvesting. 2021 , 31, 2102431	6
598	Restoring Tactile Sensation Using a Triboelectric Nanogenerator. <i>ACS Nano</i> , 2021 ,	16.7 9
597	Research on dynamics of bouncing ball in triboelectric nanogenerator. 2021 , 31, 085002	0
596	Sandwich-like triboelectric nanogenerators integrated self-powered buoy for navigation safety. 2021 , 84, 105920	20
595	A highly sensitive magnetic configuration-based triboelectric nanogenerator for multidirectional vibration energy harvesting and self-powered environmental monitoring. 2021 , 45, 18262-18274	8
594	Metastable quantum dot for photoelectric devices via flash-induced one-step sequential self-formation. 2021 , 84, 105889	5
593	A Strategy to Reduce Air Breakdown Effect and Boost Output Energy for Contact-Separation Mode Triboelectric Nanogenerator. 2021 ,	1
592	Effect of Dielectric Material and Package Stiffness on the Power Generation in a Packaged Triboelectric Energy Harvesting System for Total Knee Replacement. 2021 , 143,	4
591	Emerging Energy Harvesting Materials and Devices for Self-Powered Water Disinfection.. 2021 , 5, e2100093	3
590	3-Dimensional Logic Motion Sensing of Polyvinylidene Fluoride for Self-Powered Flexible Interactive Electronics. 2021 ,	
589	Structural and Chemical Modifications Towards High-Performance of Triboelectric Nanogenerators. 2021 , 16, 122	8
588	Gas-solid two-phase flow-driven triboelectric nanogenerator for wind-sand energy harvesting and self-powered monitoring sensor. 2021 , 85, 106023	10

587	Ultrasound-Powered Implants: A Critical Review of Piezoelectric Material Selection and Applications. 2021 , 10, e2100986	4
586	Natural Rubber-TiO Nanocomposite Film for Triboelectric Nanogenerator Application. 2021 , 13,	4
585	Soft and disordered hyperuniform elastic metamaterials for highly efficient vibration concentration.. 2022 , 9, nwab133	
584	Triboelectric Nanogenerator-Based Sensor Systems for Chemical or Biological Detection. 2021 , 33, e2008276	21
583	Triboelectric nanogenerator with double rocker structure design for ultra-low-frequency wave full-stroke energy harvesting. 2021 , 46, 101338	9
582	Research on sitting posture detection method based on flexible film pressure sensor. 2021 ,	
581	Coupling electrostatic induction and global electron circulation for constant-current triboelectric nanogenerators. 2021 , 85, 105929	3
580	Enhancement of self-powered humidity sensing of graphene oxide-based triboelectric nanogenerators by addition of graphene oxide nanoribbons. 2021 , 188, 251	3
579	Transparent, Robust, Nondrying, and Antifreezing Cellulose Organohydrogels for Energy Harvesting and Sensing Applications. 2021 , 3, 3747-3754	4
578	Stretchable, Stable, and Degradable Silk Fibroin Enabled by Mesoscopic Doping for Finger Motion Triggered Color/Transmittance Adjustment. <i>ACS Nano</i> , 2021 ,	16.7 9
577	Materials Beyond Conventional Triboelectric Series for Fabrication and Applications of Triboelectric Nanogenerators. 2021 , 11, 2101170	26
576	Kinetics of Nanoscale Probe-Based Contact Electrification between Metal and Polymethyl Methacrylate under Bias. 2021 , 73, 40-40	
575	A triboelectric/electromagnetic hybrid generator for efficient wind energy collection and power supply for electronic devices. 2021 , 64, 2003-2011	7
574	Paper triboelectric nanogenerator designed for continuous reuse and quick construction. 1	2
573	Application of Steel Spring on the ZnO Nanorods Self-Powered Triboelectric Nanogenerator for Efficient Energy Harvest in Transformers. 2021 ,	1
572	Biohybrid generators based on living plants and artificial leaves: influence of leaf motion and real wind outdoor energy harvesting. 2021 , 16,	1
571	Transparent, conductive cellulose hydrogel for flexible sensor and triboelectric nanogenerator at subzero temperature. 2021 , 265, 118078	28
570	Piezoelectric Nanogenerator Based on Electrospun Cellulose Acetate/Nanocellulose Crystal Composite Membranes for Energy Harvesting Application. 1	1

569	Enhanced output and wearable performances of triboelectric nanogenerator based on ePTFE microporous membranes for motion monitoring. 2021 , 86, 106103	12
568	Recent Advances in Flexible Tactile Sensors for Intelligent Systems. 2021 , 21,	6
567	Multifunctional Triboelectric Nanogenerator-enabled Structural Elements for Next Generation Civil Infrastructure Monitoring Systems.. 2021 , 31, 2105825	7
566	MXene enhanced self-powered alternating current electroluminescence devices for patterned flexible displays. 2021 , 86, 106077	16
565	Natural polymers based triboelectric nanogenerator for harvesting biomechanical energy and monitoring human motion. 1	8
564	The fabrication of calcium silicate-natural rubber composite for mechanical energy harvesting. 2021 , 25, 101180	0
563	Advances in Triboelectric Nanogenerators for Self-Powered Regenerative Medicine. 2105169	17
562	Mapping the Progress in Flexible Electrodes for Wearable Electronic Textiles: Materials, Durability, and Applications. 2100578	8
561	Optical and electrical properties of 3D patterned hydrophobic thin film for integrated energy harvester. 2021 , 422, 127532	2
560	All-in-one energy harvesting system with triboelectric and thermoelectric hybrid generator and Au nanoflower supercapacitor for a light stimulation to the wildlife.	
559	Interfacial Laser-Induced Graphene Enabling High-Performance Liquid-Solid Triboelectric Nanogenerator. 2021 , 33, e2104290	27
558	Recent advances in cellulose-based flexible triboelectric nanogenerators. 2021 , 87, 106175	36
557	Towards the Development of Triboelectricity-Based Virus Killer Face Mask for COVID-19: Role of Different Inputs. 2022 , 269-283	0
556	Triboelectric Nanogenerators for Energy Harvesting in Ocean: A Review on Application and Hybridization. 2021 , 14, 5600	6
555	Highly flexible and recyclable F _{Bi} O ₂ /MPU composites for self-powered active motion sensors. 2021 , 216, 109068	2
554	Intriguing triboelectrification behavior of identical P(VDF-TrFE) polymers. 2021 , 29, 122-127	1
553	Real-Time Acid Rain Sensor Based on a Triboelectric Nanogenerator Made of a PTFE/PDMS Composite Film. 2021 , 3, 4162-4171	6
552	Hybrid Triboelectric-Electromagnetic Nanogenerators for Mechanical Energy Harvesting: A Review. 2021 , 13, 199	14

551	Triboelectric nanogenerator with mechanical switch and clamp circuit for low ripple output. 1	2
550	Flexible and Extendable Honeycomb-Shaped Triboelectric Nanogenerator for Effective Human Motion Energy Harvesting and Biomechanical Sensing. 2100702	3
549	Self-Healing and Elastic Triboelectric Nanogenerators for Muscle Motion Monitoring and Photothermal Treatment. <i>ACS Nano</i> , 2021 , 15, 14653-14661	16.7 27
548	Using non-contact eccentric nanogenerator to collect energy continuously under periodic vibration. 2021 , 87, 106159	4
547	Enhanced sensitivity of self-powered NO ₂ gas sensor to sub-ppb level using triboelectric effect based on surface-modified PDMS and 3D-graphene/CNT network. 2021 , 87, 106165	13
546	From contact electrification to triboelectric nanogenerators. 2021 , 84,	61
545	Flexible Seaweed-Like Triboelectric Nanogenerator as a Wave Energy Harvester Powering Marine Internet of Things. <i>ACS Nano</i> , 2021 , 15, 15700-15709	16.7 22
544	A review on applications of graphene in triboelectric nanogenerators.	5
543	Power generation by contact and the potential applications in new energy. 2021 , 87, 106167	1
542	Electrical Applications. 2021 , 137-195	
541	Self-Powered and Interface-Independent Tactile Sensors Based on Bilayer Single-Electrode Triboelectric Nanogenerators for Robotic Electronic Skin. 2100120	2
540	Sliding Mode Direct Current Triboelectric Nanogenerators. 2021 , 90, 106531	5
539	Strong tribo-piezoelectric effect in bilayer indium nitride (InN). 2021 , 11, 18669	2
538	Surface Engineering for Enhanced Triboelectric Nanogenerator. 2021 , 1, 58-80	10
537	Flexible Ag Microparticle/MXene-Based Film for Energy Harvesting. 2021 , 13, 201	18
536	Regulating random mechanical motion using the principle of auto-winding mechanical watch for driving TENG with constant AC output [An approach for efficient usage of high entropy energy. 2021 , 87, 106195	4
535	Performance enhanced triboelectric nanogenerator by taking advantage of water in humid environments. 2021 , 88, 106303	5
534	Spring assisted triboelectric nanogenerator based on sepiolite doped polyacrylonitrile nanofibers. 2021 , 47, 101492	1

533	Flexible MXene composed triboelectric nanogenerator via facile vacuum-assistant filtration method for self-powered biomechanical sensing. 2021 , 88, 106257	16
532	Recent progress in blue energy harvesting for powering distributed sensors in ocean. 2021 , 88, 106199	33
531	Triboelectric-optical responsive cholesteric liquid crystals for self-powered smart window, E-paper display and optical switch. 2021 , 66, 1986-1993	12
530	Emerging artificial intelligence in piezoelectric and triboelectric nanogenerators. 2021 , 88, 106227	21
529	Approaches to deformable physical sensors: Electronic versus iontronic. 2021 , 146, 100640	8
528	Wearable self-powered human motion sensors based on highly stretchable quasi-solid state hydrogel. 2021 , 88, 106272	10
527	Sensitive self-powered particles detection based on cumulative triboelectric charging. 2021 , 89, 106393	2
526	Interconnected array design for enhancing the performance of an enclosed flexible triboelectric nanogenerator. 2021 , 89, 106476	3
525	Nanogenerator-based devices for biomedical applications. 2021 , 89, 106461	14
524	Bio-waste sunflower husks powder based recycled triboelectric nanogenerator for energy harvesting. 2021 , 7, 724-731	22
523	Liquid-metal embedded sponge-typed triboelectric nanogenerator for omnidirectionally detectable self-powered motion sensor. 2021 , 89, 106442	3
522	Aeroacoustics-driven jet-stream wind energy harvester induced by jet-edge-resonator. 2021 , 89, 106441	1
521	Triboelectric nanogenerator based self-powered sensor with a turnable sector structure for monitoring driving behavior. 2021 , 89, 106352	12
520	A wind vector detecting system based on triboelectric and photoelectric sensors for simultaneously monitoring wind speed and direction. 2021 , 89, 106382	9
519	Triboelectric nanogenerator-based anodic bonding of silicon to glass with an intermediate aluminum layer. 2021 , 331, 112950	1
518	Flexible, anti-freezing self-charging power system composed of cellulose based supercapacitor and triboelectric nanogenerator. 2021 , 274, 118667	9
517	Fully sustainable and high-performance fish gelatin-based triboelectric nanogenerator for wearable movement sensing and human-machine interaction. 2021 , 89, 106329	11
516	Power Generation From an Elastic Leidenfrost Hydrogel Piston Enabled Heat Engine. 2021 , 179, 121661	

515	Geometric gradient assisted control of the triboelectric effect in a smart brake system for self-powered mechanical abrasion monitoring. 2021 , 89, 106448	3
514	Influence of pore morphologies on the mechanical and tribo-electrical performance of polydimethylsiloxane sponge fabricated via commercial seasoning templates. 2021 , 189, 109720	1
513	Magnetic energy harvesting of transmission lines by the swinging triboelectric nanogenerator. 2021 , 22, 100848	7
512	Enhanced performance of triboelectric nanogenerator based on polyamide-silver antimony sulfide nanofibers for energy harvesting. 2021 , 179, 1781-1792	5
511	Ultraflexible, highly efficient electromagnetic interference shielding, and self-healable triboelectric nanogenerator based on Ti3C2T MXene for self-powered wearable electronics. 2022 , 100, 1-11	12
510	Research and application of flexible wearable electronics based on nanogenerator in touch sensor. 2021 , 70, 100705-100705	1
509	Smart Shoe Based on Battery-Free Bluetooth Low Energy Sensor. 2021 , 156-166	1
508	Self-Powered Load Sensing Circuitry for Total Knee Replacement.. 2021 , 21, 22967-22975	1
507	Performance Enhancement of Flexible Polymer Triboelectric Generator through Polarization of the Embedded Ferroelectric Polymer Layer. 2021 , 11, 1284	2
506	High rotational speed hand-powered triboelectric nanogenerator toward a battery-free point-of-care detection system.. 2021 , 11, 23221-23227	1
505	Ultra-stretchable and healable hydrogel-based triboelectric nanogenerators for energy harvesting and self-powered sensing.. 2021 , 11, 17437-17444	11
504	A High-voltage TENG-based Droplet Energy Generator with Ultralow Liquid Consumption. 2021 , PP,	0
503	Up-scalable emerging energy conversion technologies enabled by 2D materials: from miniature power harvesters towards grid-connected energy systems. 2021 , 14, 3352-3392	6
502	Flexible triboelectric nanogenerator based on polyester conductive cloth for biomechanical energy harvesting and self-powered sensors. 2021 , 13, 18363-18373	4
501	Functional sponge-based triboelectric nanogenerators with energy harvesting, oil/water separating and multi-mode sensing performance. 2021 , 9, 6913-6923	4
500	Textile triboelectric nanogenerators for self-powered biomonitoring. 2021 , 9, 19149-19178	28
499	Zeolitic Imidazole Framework: Metal-Organic Framework Subfamily Members for Triboelectric Nanogenerators. 2020 , 30, 1910162	39
498	Energy Harvesting Smart Textiles. 2017 , 199-231	8

497	Enhancing triboelectric performances of electrospun poly(vinylidene fluoride) with graphene oxide sheets. 2020 , 5, 49-57	3
496	Electricity-free electroluminescence excited by droplet impact driven triboelectric field on Solid-Liquid interface. 2020 , 75, 104823	20
495	Natural wood-based triboelectric nanogenerator as self-powered sensing for smart homes and floors. 2020 , 75, 104957	54
494	An overlapped electron-cloud model for the contact electrification in piezo-assisted triboelectric nanogenerators via control of piezoelectric polarization. 2020 , 8, 25857-25866	6
493	A membrane raindrop generator and its application as a self-powered pH sensor. 2021 , 16, 51-57	2
492	Microfluidic devices for synthesizing nanomaterials—review. 2020 , 1, 032004	17
491	Quantitatively consistent scale-spanning model for same-material tribocharging. 2020 , 4,	5
490	Modeling contact electrification in triboelectric impact oscillators as energy harvesters. 2019 ,	1
489	Analysis of a triboelectric energy harvester for total knee replacements under gait loading. 2019 ,	2
488	Characteristics of Voltage Multiplier Circuits Driven by Triboelectric Nanogenerators. 2018 , 07, 223-233	1
487	Self-powered electronic paper with energy supplies and information inputs solely from mechanical motions. 2020 , 8, 1496	10
486	Interfacial Built-In Electric Field-Driven Direct Current Generator Based on Dynamic Silicon Homojunction. 2020 , 2020, 5714754	14
485	Triboelectric Nanogenerator Enabled Smart Shoes for Wearable Electricity Generation. 2020 , 2020, 7158953	38
484	Nanogenerator-Based Self-Powered Sensors for Wearable and Implantable Electronics. 2020 , 2020, 8710686	95
483	Development of a High-throughput Micronanopatterning System Based on the Plastic Deformation Driven by Continuous Rigid Mold Edge Inscripting on Flexible Substrates. 2016 , 25, 368-372	2
482	Reduced graphene oxide for the development of wearable mechanical energy-harvesters: A review. 2021 , 1-1	3
481	High-performance triboelectric nanogenerators based on the organic semiconductor copper phthalocyanine. 2021 ,	1
480	A new insight into ZIF-67 based triboelectric nanogenerator for self-powered robot object recognition.	1

479	Synaptic transistors based on transparent oxide for neural image recognition. 2021,	
478	A Near-Zero Power Triboelectric Wake-Up System for Autonomous Beaufort Scale of Wind Force Monitoring. 2021, 1, 121-130	4
477	Intelligent facemask based on triboelectric nanogenerator for respiratory monitoring. 2022, 91, 106612	9
476	Direct-current generators based on conductive polymers for self-powered flexible devices. 2021, 11, 20258	1
475	Conductive Composite Fiber with Customizable Functionalities for Energy Harvesting and Electronic Textiles. 2021, 13, 49927-49935	6
474	Investigating the effect of nanoscale triboelectrification on nanofriction in insulators. 2022, 91, 106620	3
473	Development of Conductive Hydrogels for Fabricating Flexible Strain Sensors. 2021, e2101518	25
472	Rubik-Cube-Based Self-Powered Sensors and System: An Approach toward Smart Toys. 2107099	0
471	Advances and prospects of triboelectric nanogenerator for self-powered system. 1-23	3
470	Development of a Sustainable and Biodegradable Cotton Pappus Based Piezoelectric Nanogenerator for Instrument Vibration and Human Body Motion Sensing with Mechanical Energy Harvesting Applications. 2021, 6, 28710-28717	1
469	Green plant-based triboelectricity system for green energy harvesting and contact warning. 2021, 3, e12145	3
468	High-performance triboelectric nanogenerator based on carbon nanomaterials functionalized polyacrylonitrile nanofibers. 2022, 239, 122369	4
467	A Stretchable Multimode Triboelectric Nanogenerator for Energy Harvesting and Self-Powered Sensing. 2100870	3
466	Modeling the Triboelectric Behaviors of Elastomeric Nonwoven Fabrics. 2021, e2106429	0
465	An asymmetric AC electric field of triboelectric nanogenerator for efficient water/oil emulsion separation. 2021, 90, 106641	6
464	Ventilator integrated triboelectric nanogenerator based on structure of centrifugal brake. 2021, 27, 101525	1
463	Effect of ultraviolet light and ozone on electrification performance of polymers. 2021, 90, 106587	0
462	Massive enhancement in power output of BoPET-paper triboelectric nanogenerator using 2D-hexagonal boron nitride nanosheets. 2021, 90, 106628	4

461	Enhanced output performance of tetraethyl orthosilicate and graphene nanoplates-decorated nanofiber-based triboelectric nanogenerators. 2021 , 631, 127670	2
460	Anti-freezing organohydrogel triboelectric nanogenerator toward highly efficient and flexible human-machine interaction at BO EC . 2021 , 90, 106614	14
459	Mechanisms for Fiber-Based Nanogenerators. 2015 , 1-20	
458	Nanomaterials in Energy Generation. 207-228	
457	Folding and stretching a thermoelectric generator. 2018 ,	
456	Modeling and analysis of energy extraction circuits for triboelectric nanogenerator based vibrational energy harvesting. 2018 ,	5
455	Hybrid Vibration Energy Harvester based on Stochastic Resonance. 2018 , 138, 185-190	
454	Polymeric Triboelectric Nanogenerator: Effects Of Polymer Type, Geometry, And Porosity On Triboelectrification. 2018 ,	
453	The Prospect and Analysis of Nanogenerator for Wearable Devices. 2019 , 75-91	
452	Triboelectric Nanogenerator Based on Graphene Forest Electrodes. 2019 , 34, 839	4
451	Development of a Hybrid Power Generation System Using Photovoltaic Cells and Piezoelectric Materials. 2019 , 39, 51-58	
450	Self-supported Materials for Flexible/Stretchable Sensors. 2020 , 269-296	
449	Biohybrid Wind Energy Generators Based on Living Plants. 2020 , 234-244	0
448	The enhanced performance of piezoelectric nanogenerator by increasing zinc precursor concentration during the growth of ZnO nanorods on stainless steel foil. 2020 , 1572, 012077	2
447	Triboelectric Circular Motion Sensor with Variable Friction Type and its Service Performance Research.	0
446	Recent Progress in Self-Powered Sensors Based on Triboelectric Nanogenerators. 2021 , 21,	4
445	PDMS Microfabrication and Design for Microfluidics and Sustainable Energy Application: Review. 2021 , 12,	4
444	The self-powered artificial synapse mechanotactile sensing system by integrating triboelectric plasma and gas-ionic-gated graphene transistor. 2021 , 91, 106660	8

443	The recent advances for an archetypal smooth and discontinuous oscillator. 2021 , 106904	3
442	Triboelectrification-based particulate matter capture utilizing electrospun ethyl cellulose and PTFE spheres. 2021 , 12, 100138	2
441	Droplet-based energy harvester considering electrowetting phenomena. 2020 , 2, 045028	0
440	Advanced functional materials and devices for energy conversion and storage applications. 2022 , 43-96	1
439	Energy harvesting. 2022 , 205-212	
438	Triboelectric nanogenerator based wearable energy harvesting devices. 2020 , 69, 170202	1
437	Photoproteins Tapping Solar Energy to Power Sensors. 2020 , 127-140	
436	Triboelectric Nanogenerators for Energy Harvesting and Sensing Applications. 2020 , 327-359	
435	Powering Healthcare IoT Sensors-Based Triboelectric Nanogenerator. 2020 , 29-51	1
434	Surface Modification of Textiles with Nanomaterials for Flexible Electronics Applications. 2020 , 1-42	
433	High-energy conversion-efficiency direct-alternating-current hybrid generator with piezoelectric polylactide and dynamic Schottky diode. 2020 , 55, 9014-9026	3
432	Highly efficient self-healable and robust fluorinated polyurethane elastomer for wearable electronics. 2021 , 430, 133081	7
431	Stretchable and skin-conformal piezo-triboelectric pressure sensor for human joint bending motion monitoring. 2021 , 8, 247-247	2
430	A Triboelectric Nanogenerator Design for the Utilization of Multi-Axial Mechanical Energies in Human Motions. 2020 , 29, 312-322	0
429	Surface engineering and on-site charge neutralization for the regulation of contact electrification. 2022 , 91, 106687	2
428	A transparent electrowetting-on-dielectric device driven by triboelectric nanogenerator for extremely fast anti-fogging. 2022 , 92, 106697	4
427	Novel electrode material using electroless nickel plating for triboelectric nanogenerator: Study of the relationship between electrostatic-charge density and strain in dielectric material. 2022 , 92, 106734	4
426	Transient physical modeling and comprehensive optimal design of air-breakdown direct-current triboelectric nanogenerators. 2022 , 92, 106742	4

425	Flexible electronics with dynamic interfaces for biomedical monitoring, stimulation, and characterization. 2021 , 1, 52-70	2
424	Bioinspired mechano artificial synapse thin-film transistor. 2021 ,	
423	All-solid-state Ion Doping Synaptic Transistor for Bionic Neural computing. 2021 ,	0
422	Rational Utilization of Photoelectrochemistry of Photosystem II for Self-Powered Photocathodic Detection of MicroRNA in Cells. 2021 , 93, 15761-15767	1
421	Electronegative polyvinylidene fluoride/C60 composite nanofibers for performance enhancement of triboelectric nanogenerators. 2021 , 898, 162805	2
420	Bow-type bistable triboelectric nanogenerator for harvesting energy from low-frequency vibration. 2021 , 92, 106746	8
419	High-voltage output triboelectric nanogenerator with DC/AC optimal combination method. 1	0
418	Study of self-powered and broadband photosensing properties of CdS/PbS-decorated TiO ₂ nanorods/reduced graphene oxide junction. 2021 , 44, 1	
417	Advanced triboelectric materials for liquid energy harvesting and emerging application. 2021 ,	14
416	BaTiO ₃ -based nanogenerators: fundamentals and current status. 1	2
415	Experimental Study for the Analysis of the Potential Energy Conversion of Wastewater Discharged from Installations and Equipment of the Civil and Industrial Buildings. 2021 , 1203, 022076	
414	Grooved Fibers: Preparation Principles Through Electrospinning and Potential Applications. 1	12
413	Multifunctional Ternary Hybrid Hydrogel Sensor Prepared the Synergistic Stabilization Effect. 2021 , 13, 57725-57734	2
412	Recent Advances in Plant Nanoscience. 2021 , 9, e2103414	7
411	Multidimensional Force Sensors Based on Triboelectric Nanogenerators for Electronic Skin. 2021 , 13, 56320-56328	5
410	Soft artificial electroreceptors for noncontact spatial perception. 2021 , 7, eabg9203	3
409	Self-Powered Sensing for Smart Agriculture by Electromagnetic-Triboelectric Hybrid Generator. <i>ACS Nano</i> , 2021 ,	16.7 12
408	High-performance triboelectric nanogenerator with optimized Al or Ti-embedded silicone tribomaterial. 2021 , 252, 115053	1

407 Core Units of Smart Micro-systems. **2022**, 39-75

406 Mechanism of In-Plane and Out-of-Plane Tribovoltaic Direct-Current Transport with a Metal/Oxide/Metal Dynamic Heterojunction.. **2022**, 14, 2968-2978 6

405 A High Output Triboelectric-Electromagnetic Hybrid Generator Based on In-Phase Parallel Connection. 2101485 0

404 Intelligent systems using triboelectric, piezoelectric, and pyroelectric nanogenerators. **2022**, 5

403 Improvement in the output performance of polyethylene oxide-based triboelectric nanogenerators by introducing core-shell Ag@SiO₂ particles. **2021**, 10, 265-273 1

402 Optimization strategy of wind energy harvesting via triboelectric-electromagnetic flexible cooperation. **2022**, 307, 118311 4

401 Smart band-aid: Multifunctional and wearable electronic device for self-powered motion monitoring and human-machine interaction. **2022**, 92, 106840 5

400 Self-powered and photothermal electronic skin patches for accelerating wound healing. **2022**, 93, 106906 13

399 Fabrication of polyethyleneimine-paper composites with improved tribopositivity for triboelectric nanogenerators. **2022**, 93, 106859 6

398 Highly wearable, machine-washable, and self-cleaning fabric-based triboelectric nanogenerator for wireless drowning sensors. **2022**, 93, 106835 10

397 Effect of relative humidity on the enhancement of the triboelectrification efficiency utilizing water bridges between triboelectric materials. **2022**, 93, 106880 4

396 All-electrospun performance-enhanced triboelectric nanogenerator based on the charge-storage process. **2022**, 57, 5334 2

395 Achieving Remarkable Charge Density Via Self-polarization of Polar High-k Material in Charge-excitation Triboelectric Nanogenerator.. **2022**, e2109918 12

394 A facile method to enhance the output performance of triboelectric nanogenerators based on coordination polymers by modulating terminal coordination groups. **2021**, 24, 192-198 2

393 Triboelectric Leakage-Field-Induced Electroluminescence Based on ZnS:Cu.. **2022**, 3

392 Biomimetic jagged micropatterns templated from photoswitchable liquid crystal topography for energy harvesting and sensing applications. **2022**, 10, 1808-1815 0

391 Multifaceted, printable skin-integrated electronics for monitoring physiological functions. **2022**, 10, 1479-1487 1

390 Embedding in-plane aligned MOF nanoflakes in silk fibroin for highly enhanced output performance of triboelectric nanogenerators. **2022**, 10, 799-807 5

389	Energy Optimization of a Mirror-Symmetric Spherical Triboelectric Nanogenerator. 2110516	1
388	Methyl Orange-Doped Polypyrrole Promoting Growth of ZIF-8 on Cellulose Fiber with Tunable Tribopolarity for Triboelectric Nanogenerator.. 2022 , 14,	2
387	A high-performance PDMS-based triboelectric nanogenerator fabricated using surface-modified carbon nanotubes via pulsed laser ablation. 2022 , 10, 1299-1308	8
386	Trapezoidal Cantilever-Structure Triboelectric Nanogenerator Integrated with a Power Management Module for Low-Frequency Vibration Energy Harvesting.. 2022 ,	4
385	Contact electrification through interfacial charge transfer: a mechanistic viewpoint on solid-liquid interfaces. 2022 , 4, 884-893	1
384	Construction of MXene/PDMS-Based Triboelectric Nanogenerators for High-Performance Cathodic Protection. 2102085	3
383	Intelligent Sound Monitoring and Identification System Combining Triboelectric Nanogenerator-Based Self-Powered Sensor with Deep Learning Technique. 2112155	3
382	Self-assisted wound healing using piezoelectric and triboelectric nanogenerators.. 2022 , 23, 1-16	6
381	Electrochemical Devices to Monitor Ionic Analytes for Healthcare and Industrial Applications. 2022 , 10, 22	1
380	Triboelectric Response of Electrospun Stratified PVDF and PA Structures.. 2022 , 12,	4
379	A Flexible Triboelectric Nanogenerator Based on Cellulose-Reinforced MXene Composite Film. 2102124	2
378	A review of flow-induced vibration energy harvesters. 2022 , 254, 115223	15
377	Recent progress in hydrogel-based sensors and energy harvesters. 2022 , 335, 113382	0
376	Online lubricant degradation monitoring using contact charging of polymers. 2022 , 584, 152593	0
375	Triboelectric nanogenerator based on a moving bubble in liquid for mechanical energy harvesting and water level monitoring. 2022 , 95, 106998	5
374	Field-assisted thermionic emission toward quantitative modeling of charge-transfer mechanisms in contact electrification.	
373	Vortex-induced vibration triboelectric nanogenerator for low speed wind energy harvesting. 2022 , 95, 107029	5
372	A Survey of Hybrid Energy Devices Based on Supercapacitors. 2022 ,	1

371	Solid-state intrinsically-superstretchable multifunctional nanogenerator fiber for biomechanical and ambient electromagnetic energy harvesting and self-powered sensing. 2022 , 95, 107035	2
370	Ultra-low friction self-levitating nanomagnetic fluid bearing for highly efficient wind energy harvesting. 2022 , 52, 102024	1
369	Applications of nanogenerators for biomedical engineering and healthcare systems. 2022 , 4,	13
368	On the expanded Maxwell's equations for moving charged media system [General theory, mathematical solutions and applications in TENG. 2021 ,	17
367	Sustainable Desalination Device Capable of Producing Fresh Water and Electricity.	
366	Tribo-Electro-Catalytic Nitrogen Fixation Directly from Natural Air Through BaTiO ₃ Nanofibers Harvesting Friction Energy.	
365	Surface microstructural engineering of silicone elastomers for high performance adhesive surface-enabled mechanical energy harvesters.	0
364	Slug-Inspired Magnetic Soft Millirobot Fully Integrated with Triboelectric Nanogenerator for On-Board Sensing and Self-Powered Charging.	
363	A Triboelectric Nanogenerator Based on PDMS and Parafilm For Biomechanical Energy Harvesting. 2022 ,	
362	Self-powered sensing based on triboelectric nanogenerator through machine learning and its application. 2022 , 71, 1	
361	Multi-Parameter Optimized Triboelectric Nanogenerator Based Self-Powered Sensor Network for Broadband Aeolian Vibration Online-Monitoring of Transmission Lines. 2022 , 12, 2103654	8
360	Improving Wastewater Treatment by Triboelectric-Photo/Electric Coupling Effect.. <i>ACS Nano</i> , 2022 ,	16.7 9
359	Experiment and parametric analysis of sliding mode triboelectric energy harvester. 1-15	0
358	Contact Separation Triboelectric Nanogenerator Based Neural Interfacing for Effective Sciatic Nerve Restoration. 2200269	7
357	Filling the gap between topological insulator nanomaterials and triboelectric nanogenerators.. 2022 , 13, 938	7
356	Origin of ductility in amorphous Ag ₂ S _{0.4} Te _{0.6} . 2022 , 120, 073905	3
355	A New Self-Healing Triboelectric Nanogenerator Based on Polyurethane Coating and Its Application for Self-Powered Cathodic Protection.. 2022 , 14, 10498-10507	7
354	Secondary Energy Conversion Devices Based on Cylindrical Liquid Crystalline Elastomer-Assisted Triboelectric Generators.	

353	Printed Circuit Boards: The Layers' Functions for Electronic and Biomedical Engineering.. 2022 , 13,	0
352	Eco-Friendly Triboelectric Material Based on Natural Rubber and Activated Carbon from Human Hair.. 2022 , 14,	1
351	A high-accuracy, real-time, intelligent material perception system with a machine-learning-motivated pressure-sensitive electronic skin. 2022 ,	12
350	Self-powering vibration sensor based on a cantilever system with single-electrode mode triboelectric nanogenerator.	1
349	Integrated electronic skin (e-skin) for harvesting of TENG energy through push-pull ionic electrets and ion-ion hopping mechanism.. 2022 , 12, 3879	1
348	Frequency Up-Conversion for Vibration Energy Harvesting: A Review. 2022 , 14, 631	1
347	Graphene Ionogel Ultra-Fast Filter Supercapacitor with 4V Workable Window and 150 °C Operable Temperature.. 2022 , e2200916	2
346	A Triboelectric Nanogenerator for Energy Harvesting from Transformers Vibrations. 2022 , 10, 215	0
345	An Ionic Hydrogel-Based Antifreezing Triboelectric Nanogenerator.	4
344	3D fully-enclosed triboelectric nanogenerator with bionic fish-like structure for harvesting hydrokinetic energy. 1	0
343	Multilayer flexible electronics: Manufacturing approaches and applications. 2022 , 23, 100647	1
342	Transparent, stretchable and anti-freezing hybrid double-network organohydrogels. 1	1
341	A fluorine-rich phenolic polyurethane elastomer with excellent self-healability and reprocessability and its applications for wearable electronics. 1	2
340	Study of charged object sensing properties via an organic nanobelt. 2022 , 103, 106473	
339	Development of Algorithms for an IoT-Based Smart Agriculture Monitoring System. 2022 , 2022, 1-16	2
338	A Triboelectric Piston Cylinder Assembly with Condition-Monitoring and Self-Powering Capabilities. 2200014	
337	A Self-Powered and Efficient Triboelectric Dehydrator for Separating Water-in-Oil Emulsions with Ultrahigh Moisture Content. 2200198	1
336	Harvesting circuits for triboelectric nanogenerators for wearable applications.. 2022 , 25, 103977	0

335	Antibacterial, Antifreezing, Stretchable, and Self-Healing Organohydrogel Electrode Based Triboelectric Nanogenerator for Self-Powered Biomechanical Sensing. 2200290	0
334	Highly durable direct-current power generation in polarity-controlled and soft-triggered rotational triboelectric nanogenerator. 2022, 314, 119006	0
333	The strategy of circuit design for high performance nanogenerator based self-powered heart rate monitor system. 2022, 96, 107136	0
332	Evaluation of DLC, MoS ₂ , and Ti ₃ C ₂ T thin films for triboelectric nanogenerators. 2022, 97, 107185	3
331	Constructing high output performance triboelectric nanogenerator via V-shape stack and self-charge excitation. 2022, 96, 107068	6
330	Industrial production of bionic scales knitting fabric-based triboelectric nanogenerator for outdoor rescue and human protection. 2022, 97, 107168	1
329	Highly sensitive three-dimensional scanning triboelectric sensor for digital twin applications. 2022, 97, 107198	1
328	Skin-inspired textile-based tactile sensors enable multifunctional sensing of wearables and soft robots. 2022, 96, 107137	8
327	Piezoelectric potential-enhanced output and nonlinear response range for self-powered sensor on curved surface. 2022, 96, 107103	1
326	Low-grade heat energy harvesting system based on the shape memory effect and hybrid triboelectric-electromagnetic nanogenerator. 2022, 96, 107106	4
325	A triboelectric nanogenerator sensor based on phononic crystal structures for smart buildings and transportation systems. 2022, 97, 107165	2
324	Ice-based triboelectric nanogenerator with low friction and self-healing properties for energy harvesting and ice broken warning. 2022, 97, 107144	3
323	Stretchable and ultrasensitive strain sensor based on a bilayer wrinkle-microcracking mechanism. 2022, 437, 135399	6
322	Liquid-solid triboelectric nanogenerators for a wide operation window based on slippery lubricant-infused surfaces (SLIPS). 2022, 439, 135688	1
321	Fiber-like Wearable Triboelectric Nanogenerator with Bionic Micro-Structure. 2021,	0
320	An Innovative Concept: Free Energy Harvesting Through Self-Powered Triboelectric Nanogenerator. 2021, 16, 1844-1849	
319	Supramolecular Cation- π Interaction Enhances Molecular Solar Thermal Fuel.. 2021,	4
318	Tactile tribotronic reconfigurable p-n junctions for artificial synapses. 2021,	2

317	Interaction between Water Wave and Geometrical Structures of Floating Triboelectric Nanogenerators. 2022 , 12, 2103408	4
316	Virtual reality application with nano-display improves training of pipeline installation in oil and gas industry. 2021 , 11, 2024-2032	0
315	Tribo-electrochemistry induced artificial solid electrolyte interface by self-catalysis. 2021 , 12, 7184	8
314	Electricity Generation and Self-Powered Sensing Enabled by Dynamic Electric Double Layer at Hydrogel-Dielectric Elastomer Interfaces. <i>ACS Nano</i> , 2021 ,	16.7 6
313	Research on energy harvesting and LED driving prospects of triboelectric nanogenerator. 2021 ,	
312	Vibration Energy Harvester Based on Torsionally Oscillating Magnet.. 2021 , 12,	0
311	Emerging design principles, materials, and applications for moisture-enabled electric generation. 2021 ,	6
310	Stretchable Thermoelectric-Based Self-Powered Dual-Parameter Sensors with Decoupled Temperature and Strain Sensing. 2021 ,	12
309	Flexible Piezoelectric and Triboelectric Sensors for Energy Harvesting Applications. 2022 , 131-152	
308	Advanced multifunctional structures for future smart cities. 2022 , 29-52	1
307	Hybrid Nanogenerator for Biomechanical Energy Harvesting, Motion State Detection, and Pulse Sensing. 2101332	2
306	Silver Nanowire Synthesis and Applications in Composites: Progress and Prospects. 2200027	0
305	Highly stretchable, durable, and breathable thermoelectric fabrics for human body energy harvesting and sensing.	8
304	Aerodynamics-Based Triboelectric Nanogenerator for Enhancing Multi-Operating Robustness via Mode Automatic Switching. 2202964	6
303	Data_Sheet_1.pdf. 2019 ,	
302	Self-Powered Active Sensing based on Triboelectric Generator.. 2022 , e2200724	15
301	Skin-Inspired Textile-Based Tactile Sensors Enable Multifunctional Sensing of Wearables and Soft Robots.	
300	Highly Sensitive and Flexible Capacitive Pressure Sensor Based on Alignment Airgap Dielectric Layer.	2

299	Electrospun Hydrolyzed Collagen from Tanned leather Shavings For Bio-Triboelectric Nanogenerator.	0
298	High Power-Output and Highly Stretchable Protein-Based Triboelectric Nanogenerator.	
297	Nanogenerators-Based Self-Powered Sensors. 2200282	2
296	Recent trends in additive manufacturing of electronics devices. 2022,	
295	Rational design of self-powered sensors with polymer nanocomposites for human-machine interaction. 2022,	0
294	Recent Advancements for Improving the Performance of Triboelectric Nanogenerator Devices. 2022, 107318	5
293	Slug-inspired Magnetic Soft Millirobot Fully Integrated with Triboelectric Nanogenerator for On-board Sensing and Self-powered Charging. 2022, 107367	3
292	A Multi-Modal Energy Harvesting Device for Multi-Directional and Low-Frequency Wave Energy. 2022, 9,	2
291	Pyrrolidinium-Based Organic Cation (BMP)-Intercalated Organic (Coronene) Anode for High-Voltage Dual-Ion Batteries: A Comparative Study with Graphite.	0
290	A Review on Epidermal Nanogenerators: Recent Progress of the Future Self-powered Skins.	
289	High-performance triboelectric nanogenerator based on chitin for mechanical-energy harvesting and self-powered sensing. 2022, 119586	0
288	Effect of Surface Pre-Charging and Electric Field on the Contact Electrification between Liquid and Solid.	1
287	Multi-dimensional, transparent and foldable cellulose-based triboelectric nanogenerator for touching password recognition. 2022, 98, 107307	1
286	Sustainable desalination device capable of producing freshwater and electricity. 2022, 535, 115820	2
285	On a spring-assisted multi-stable hybrid-integrated vibration energy harvester for ultra-low-frequency excitations. 2022, 252, 124028	2
284	Smart Pillow Based on Flexible and Breathable Triboelectric Nanogenerator Arrays for Head Movement Monitoring during Sleep.. 2022,	5
283	Nanogenerator-Based Sensors for Energy Harvesting From Cardiac Contraction. 2022, 10,	3
282	Gas-Responsive and Self-Powered Visual Composite Langmuir-Blodgett Films for Ultrathin Gas Sensors.. 2022,	

281	Deep Learning Enabled Neck Motion Detection Using a Triboelectric Nanogenerator.. <i>ACS Nano</i> , 2022 ,	16.7	3
280	A High-Performance Flag-Type Triboelectric Nanogenerator for Scavenging Wind Energy toward Self-Powered IoTs. 2022 , 15, 3696		0
279	Low-cost micro-graphite doped polydimethylsiloxane composite film for enhancement of mechanical-to-electrical energy conversion with aluminum and its application. 2022 , 135, 104388		1
278	Effects of metal nanoparticles on the performance of PDMS based triboelectric nanogenerators. 2022 , 639, 413952		1
277	Driving-torque self-adjusted triboelectric nanogenerator for effective harvesting of random wind energy. 2022 , 99, 107389		0
276	Effect of Water and DMSO on Mechanoelectrical Conversion of Schottky DC Generators.		0
275	Plastic Film Based Lightweight Thruster Driven by Triboelectric Nanogenerator for Multi-Purpose Propulsion Applications.		
274	A New Hierarchical Optimization Dispatching Method of Cross-provincial Power To Improve New Energy Consumption. 2022 ,		
273	An easy and efficient power generator with ultrahigh voltage for lighting, charging and self-powered systems. 2022 , 107409		1
272	Controllable and Scalable Fabrication of Superhydrophobic Hierarchical Structures for Water Energy Harvesting. 2022 , 11, 1651		
271	A Low-Cost Simple Sliding Triboelectric Nanogenerator for Harvesting Energy from Human Activities. 2200186		2
270	Integrated hybrid sensing and microenergy for compact active microsystems. 2022 , 8,		1
269	Ultrahigh Sensitive, Eco-friendly, Transparent Triboelectric Nanogenerator for Monitoring Human Motion and Vehicle Movement. 2022 , 137393		0
268	3D printing stretchable core-shell laser scribed graphene conductive network for self-powered wearable devices. 2022 , 240, 110000		1
267	Self-driven real-time angle vector sensor as security dialer based on bi-directional backstop triboelectric nanogenerator. 2022 , 99, 107430		0
266	A Self-Powered Human-Pet Interaction System Enabled by Triboelectric Nanogenerator Functionalized Pet-Leash.		
265	Phase-separated porous PVDF-CO-HFP thin film for High-power triboelectric nanogenerator. 2022 , 59, 51-59		
264	Functional Nanomaterial-Based Flexible Electronics. 2022 , 12, 809		1

263	Fluorine-doped graphene as triboelectric material.	0
262	Detailed investigation of sinusoidal vibration on triboelectric energy harvester. 1-14	2
261	Probing Polymer Contact Electrification by Gamma-Ray Radiation. 9,	
260	Vibration-Driven Triboelectric Nanogenerator for Vibration Attenuation and Condition Monitoring for Transmission Lines.	2
259	Nanogenerator-Based Wireless Intelligent Motion Correction System for Storing Mechanical Energy of Human Motion. 2022 , 14, 6944	0
258	Strong Tribocatalytic Nitrogen Fixation of Graphite Carbon Nitride g-C ₃ N ₄ through Harvesting Friction Energy. 2022 , 12, 1981	4
257	Recent Development of Morphology-Controlled Hybrid Nanomaterials for Triboelectric Nanogenerator: A Review.	1
256	Triboelectric Nanogenerator Based on Polyimide/Boron Nitride Nanosheets/Polyimide Nanocomposite Film with Enhanced Electrical Performance.	1
255	Energy Harvesting Using Cotton Fabric Embedded with 2D Hexagonal Boron Nitride.	1
254	Underwater wireless communication via TENG-generated Maxwell's displacement current. 2022 , 13,	3
253	Triboelectric nanogenerator enhanced radical generation in a photoelectric catalysis system via pulsed direct-current. 2022 , 100, 107515	3
252	Modeling and optimization of a rotational symmetric spherical triboelectric generator. 2022 , 100, 107491	3
251	Biomechanical energy harvesting for wearable and mobile devices: State-of-the-art and future directions. 2022 , 321, 119379	3
250	3D micro-nanostructure based waterproof triboelectric nanogenerator as an outdoor adventure power source. 2022 , 100, 107506	3
249	Particle triboelectric nanogenerator (P-TENG). 2022 , 100, 107475	2
248	Polysaccharide-based nanocomposites for energy-harvesting nanogenerators. 2022 , 159-180	
247	Effect of humidity on the performance of polyvinyl chloride based triboelectric nanogenerator. 2022 ,	0
246	Self-powered wearable sensors design considerations. 2022 , 32, 083002	

245 Self-powered photosensing and biosensing using hydrothermally grown CdS nanorods.

244 Self-Powered Electrodeposition System for Sub-10-nm Silver Nanoparticles with High-Efficiency Antibacterial Activity. 6721-6730 3

243 Design of Self-Powered Sensors with Excellent Thermal and UV Light Detections by $0.94(\text{Bi } 0.5 \text{ Na } 0.5) \text{TiO}_3 - 0.06\text{Ba}(\text{Zr } 0.25 \text{ Ti } 0.75) \text{O}_3$ Nanoparticles. 2204234 1

242 High-voltage direct current triboelectric nanogenerator based on charge pump and air ionization for electrospinning. 2022, 107599 0

241 A self-powered human-pet interaction system enabled by triboelectric nanogenerator functionalized pet-leash. 2022, 107597 0

240 Review of wave power system development and research on triboelectric nano power systems. 10,

239 Nerve Stimulation by Triboelectric Nanogenerator Based on Nanofibrous Membrane for Spinal Cord Injury. 10,

238 Ferroelectricity-Coupled 2D-MXene-Based Hierarchically Designed High-Performance Stretchable Triboelectric Nanogenerator. *ACS Nano*, 16.7 3

237 A novel flow sensing and controlling system based on the flapping film triboelectric nanogenerator toward smart factories. 2022, 344, 113727 1

236 Plastic film based lightweight thruster driven by triboelectric nanogenerator for multi-purpose propulsion applications. 2022, 101, 107558 1

235 A new route for the recycling of spent lithium-ion batteries towards advanced energy storage, conversion, and harvesting systems. 2022, 101, 107595 2

234 Smart fire alarm systems for rapid early fire warning: Advances and challenges. 2022, 450, 137927 2

233 A real-time sensing system based on triboelectric nanogenerator for dynamic response of bridges. 1

232 Millivolt-Level Stable Voltage Output of Triboelectric Nanogenerator Under Random Excitation by Double Limiting. 2200374

231 High-Performance Liquid Crystalline Polymer for Intrinsic Fire-Resistant and Flexible Triboelectric Nanogenerators. 2204543 4

230 Controllable design of high-efficiency triboelectric materials by functionalized metal-organic frameworks with a large electron-withdrawing functional group. 2

229 Performance analysis and application of a hybrid electromagnetic-triboelectric nanogenerator for energy harvesting. 2022, 8, 9184-9200 0

228 Triboelectric Nanogenerators for Harvesting Diverse Water Kinetic Energy. 2022, 13, 1219 0

227	Smart Nanotextiles for Energy Generation. 2022 , 265-309	
226	Highly Adaptive Liquid-Solid Triboelectric Nanogenerator-Assisted Self-Powered Water Wave Motion Sensor. 2022 , 4, 3870-3879	1
225	Honeycomb-Patterned Polyimide-Based Triboelectric Nanogenerator with Excellent Thermal Stability and Enhanced Electrification Performance. 2022 , 5, 9791-9800	1
224	Enhancing Drug Utilization Efficiency via Dish-Structured Triboelectric Nanogenerator. 10,	1
223	Self-powered and self-sensing devices based on human motion. 2022 , 6, 1501-1565	3
222	Driving Waveforms and Image Processing for Electrophoretic Displays. 2022 , 53-74	
221	Artificial tactile perception smart finger for material identification based on triboelectric sensing. 2022 , 8,	11
220	Touchless-Interactive teaching of soft robots through flexible bimodal sensory interfaces. 2022 , 13,	7
219	Research Progress on Triboelectric Nanogenerator for Sports Applications. 2022 , 15, 5807	1
218	Harvesting Wind Energy Based on Triboelectric Nanogenerators. 2022 , 2, 245-270	0
217	Research on energy conversion of triboelectric nanogenerator based on multi-channel switched capacitor array circuit. 2022 ,	
216	Pertinence of Textile-Based Energy Harvesting System for Biomedical Applications. 2022 , 2022, 1-13	0
215	TENG-inspired LED-in-capacitors for Smart Self-powered High-voltage Monitoring and High-sensitivity Demodulation of Power-line Communications. 2022 , 107698	0
214	Bioengineering of spider silks for the production of biomedical materials. 10,	1
213	Output Enhancement of Triboelectric Nanogenerators Based on Hierarchically Regular Cadmium Coordination Polymers for Photocycloaddition. 2022 , 61, 12736-12745	1
212	Bio-based epoxidized natural rubber/chitosan/cellulose nanocrystal composites for enhancing mechanical properties, self-healing behavior and triboelectric nanogenerator performance.	0
211	Enhancement of triboelectric nanogenerators output performance by background paper-based hierarchical micro-structures for energy harvesting. 2022 , 121, 063902	
210	A hybrid triboelectric nanogenerator for enhancing corrosion prevention of metal in marine environment. 2022 , 6,	1

209	UltraWide Range Vibration Frequency Detection Sensors Based on Elastic Steel Triboelectric Nanogenerators for Intelligent Machinery Monitoring. 2022 , 12, 2790	
208	Recent Progresses in Wearable Triboelectric Nanogenerators. 2205438	5
207	Nanogenerators integrated self-powered multi-functional wings for biomimetic micro flying robots. 2022 , 101, 107627	
206	Tunable polarity reversal phenomenon at the initial working state of triboelectric nanogenerator. 2022 , 102, 107651	1
205	Curved flap array-based triboelectric self-powered sensor for omnidirectional monitoring of wind speed and direction. 2022 , 102, 107717	0
204	Facile fabrication of stretchable and multifunctional thermoelectric composite fabrics with strain-enhanced self-powered sensing performance. 2022 , 35, 101275	1
203	Wearable and flexible electrodes in nanogenerators for energy harvesting, tactile sensors, and electronic textiles: novel materials, recent advances, and future perspectives. 2022 , 100233	2
202	GnPs/PVDF decorated thermoplastic veils to boost the triboelectric nanogenerator output performance toward highly efficient energy harvesting. 2022 , 270, 116204	0
201	Eco-benign nanostructured triboelectric films of onion tunic-SnOx based TENG for sustainable and green energy generation. 2022 , 291, 126736	0
200	Copper particles-PTFE tube based triboelectric nanogenerator for wave energy harvesting. 2022 , 102, 107749	0
199	Direct-current triboelectric nanogenerator based on electrostatic breakdown effect. 2022 , 102, 107745	0
198	Chemical structure-based design of triboelectric materials for high-performance TENGs. 2022 , 103, 107847	1
197	Applications of nanogenerator-based wearable devices in orthopedics. 2022 , 103, 107762	2
196	A flexible high-output triboelectric nanogenerator based on MXene/CNT/PEDOT hybrid film for self-powered wearable sensors. 2022 , 928, 167137	0
195	A nano-micro structure engendered abrasion resistant, superhydrophobic, wearable triboelectric yarn for self-powered sensing. 2022 , 103, 107769	3
194	Water-based triboelectric nanogenerator for wireless energy transmission and self-powered communication via a solid-liquid-solid interaction. 2022 , 605, 154765	1
193	Correlation between frictional heat and triboelectric charge: In operando temperature measurement during metal-polymer physical contact. 2022 , 103, 107813	0
192	Potential energy-assisted coupling of phase change materials with triboelectric nanogenerator enabling a thermally triggered, smart, and self-powered IoT thermal and fire hazard sensor: Design, fabrication, and applications. 2022 , 103, 107790	0

191	Machine learning-augmented wearable triboelectric human-machine interface in motion identification and virtual reality. 2022 , 103, 107766	1
190	On the origin of enhanced power output in ferroelectric polymer-based triboelectric nanogenerators: Role of dipole charge versus piezoelectric charge. 2022 , 103, 107806	1
189	Electrospun nanofiber based TENGs for wearable electronics and self-powered sensing. 2023 , 452, 139060	3
188	High power-output and highly stretchable protein-based biomechanical energy harvester. 2023 , 451, 138714	1
187	A standard for normalizing the outputs of triboelectric nanogenerators in various modes. 2022 , 15, 3901-3911	o
186	A novel smart composite: from self-powered sensors to multi-responsive shape memory actuators.	o
185	CHAPTER 11. Printed Electronics Applications: Energy Conversion and Storage Devices. 2022 , 445-515	o
184	CHAPTER 12. Printed Electronics Applications: Sensors, Actuators and Biosensors. 2022 , 516-598	o
183	Influence of surface functionalization on the contact electrification of fabrics. 2022 , 46, 15645-15656	o
182	Flexoelectric enhanced film for an ultrahigh tunable piezoelectric-like effect.	o
181	Enhanced Performance of Triboelectric Nanogenerator with Micro-Rhombic Patterned PDMS for Self-Powered Wearable Sensing. 2022 , 9, 2201265	o
180	Direct-Current Triboelectric Nanogenerators Based on Semiconductor Structure. 2022 , 4, 4212-4230	o
179	Triboelectric nanogenerators as wearable power sources and self-powered sensors.	1
178	Covalent Organic Frameworks with Tailored Functionalities for Modulating Surface Potentials in Triboelectric Nanogenerators.	o
177	Advances in Marine Self-Powered Vibration Sensor Based on Triboelectric Nanogenerator. 2022 , 10, 1348	1
176	A Highly Sensitive and Flexible Capacitive Pressure Sensor Based on Alignment Airgap Dielectric. 2022 , 22, 7390	o
175	Application of Triboelectric Nanogenerator in Fluid Dynamics Sensing: Past and Future. 2022 , 12, 3261	2
174	Electrospun P3HT/PVDF-HFP semiconductive nanofibers for triboelectric nanogenerators. 2022 , 12,	o

173	Fluid-Induced Piezoelectric Energy Harvesters. 2022 , 153-170	0
172	Covalent Organic Frameworks with Tailored Functionalities for Modulating Surface Potentials in Triboelectric Nanogenerators.	2
171	Passivation of Mid-Gap Electronic States at Calcium Aluminosilicate Glass Surfaces upon Water Exposure: An Ab Initio Study. 2022 , 126, 7709-7719	0
170	Active Electric Dipole Energy Sources: Transduction via Electric Scalar and Vector Potentials. 2022 , 22, 7029	0
169	Design and theoretical investigation of a torsional bistable triboelectric nanogenerator. 2022 , 107760	1
168	Molecular engineering-device efficiency relation: Performance boosting of triboelectric nanogenerator through doping of small molecules.	0
167	MXene/Multiwalled Carbon Nanotube/Polymer Hybrids for Tribopiezoelectric Nanogenerators. 2022 , 5, 12836-12847	0
166	Facile Synthesis of Biobased Polyamide Derived from Epoxidized Soybean Oil as a High-Efficiency Triboelectric Nanogenerator.	1
165	Surface Area Enhanced Nylon-6,6 Nanofiber Engineered Triboelectric Nanogenerator for Self-Powered Seat Monitoring Applications.	1
164	Waste Biomaterial SnO Nanoparticles Composite Based Green Triboelectric Nanogenerator for Self-Powered Human Motion Monitoring. 2022 , 4, 4694-4707	0
163	Modulating ZnO Growth Structures for Maximum Power Output of Hybrid Piezo/Triboelectric Nanogenerator. 2206750	1
162	Thin PDMS-on-Sacrificial-PCB Devices. 2022 , 4, 4490-4498	0
161	Bionic Interlocking-Structured Polyvinylidene Fluoride/Zinc Oxide-Grafting Barium Titanate for Energy Harvesting and Tire Pressure Monitoring. 2022 , 61, 14242-14250	0
160	Multilayered MoS ₂ Sphere-Based Triboelectric Flexoelectric Nanogenerators as Self-Powered Mechanical Sensors for Human Motion Detection.	0
159	Enhanced Performance of Triboelectric Nanogenerators and Sensors via Cold Spray Particle Deposition.	0
158	Materials and Biomedical Applications of Implantable Electronic Devices. 2200853	0
157	Kinetic energy harvesting based sensing and IoT systems: A review. 3,	0
156	Highly Stable and End-group Tuneable Metal Organic Framework/Polymer Composite for Superior Triboelectric Nanogenerator Application. 2201713	0

155	Carbon Nanotube Ink Dispersed by Chitin Nanocrystals for Thermoelectric Converter for Self-Powering Multifunctional Wearable Electronics. 2204675	2
154	Electrostatic discharge prevention system via body potential control based on a triboelectric nanogenerator. 2022 , 103, 107834	2
153	Experimental and theoretical investigations of a novel electret-based wave energy converter. 2022 , 103, 107854	0
152	Enhanced surface charge density of nanogenerators by small molecules: a review.	0
151	Recent Progress in Advanced Units of Triboelectric Electronic Skin. 2200834	0
150	An artificial remote tactile device with 3D depth-of-field sensation. 2022 , 8,	2
149	Power Output Enhancement of Natural Rubber Based Triboelectric Nanogenerator with Cellulose Nanofibers and Activated Carbon. 2022 , 14, 4495	2
148	Self-powered piezoelectric player-interactive patch for guitar learning assistance.	0
147	Boosting performance of triboelectric nanogenerator via polydimethylsiloxane modified with perovskite BiFeO ₃ nanoparticles. 1-10	0
146	Roadmap on nanogenerators and piezotronics. 2022 , 10, 109201	0
145	Electrodeless Nanogenerator for Dust Recover. 2200699	7
144	Engineering of Nanocellulose Thin Films for Triboelectric Nanogenerator Development. 2023 , 335-366	0
143	Onion-like carbon as nano-additive for tribological nanogenerators with enhanced output performance and stability. 2022 , 104, 107900	0
142	Continuously fabricated nano/micro aligned fiber based waterproof and breathable fabric triboelectric nanogenerators for self-powered sensing systems. 2022 , 104, 107885	0
141	A double-float structured triboelectric nanogenerator for wave hydrological monitoring. 2022 , 54, 102824	0
140	New blind navigation sensor based on triboelectrification and electrostatic induction. 2022 , 104, 107899	1
139	Energy-from-waste: A triboelectric nanogenerator fabricated from waste polystyrene for energy harvesting and self-powered sensor. 2022 , 104, 107902	0
138	Antibacterial flexible triboelectric nanogenerator via capillary force lithography. 2023 , 630, 611-622	1

- 137 Triboelectric nanogenerator with enhanced output and durability based on Si-DLC films. **2023**, 105, 107997 1
- 136 Wireless Power Transfer for Smart Knee Implants. **2022**, 10, 15048-15056 0
- 135 A volatile organic compound free unibody triboelectric nanogenerator and its application as a smart green track. **2022**, 108001 0
- 134 Effects of Graphene Redox on Its Triboelectrification at the Nanoscale. 0
- 133 Triboelectric Nanogenerators in Sustainable Chemical Sensors. **2022**, 10, 484 0
- 132 Flexible carbon cloth-based single-electrode triboelectric nanogenerators with incorporated TiO₂ nanoparticles. **2022**, 8, 15048-15056 0
- 131 Recent advances in breathable electronics. 0
- 130 Progress and challenges in energy harvesting for electrical skin: a review. 0
- 129 Tunable Tribovoltaic Effect via Metal-Insulator Transition. 0
- 128 Surface patterning strategies for performance enhancement in triboelectric nanogenerators. **2022**, 16, 100756 0
- 127 Energy harvesting solutions for railway transportation: A comprehensive review. **2022**, 10, 15048-15056 0
- 126 A triboelectric-electromagnetic hybrid generator for scavenging low-frequency oscillation energy from the environment and human body. 0
- 125 Recent Progresses in Liquid-Free Soft Ionic Conductive Elastomers. 0
- 124 Self-Powered Paper-Based Pressure Sensor Driven by Triboelectric Nanogenerator for Detecting Dynamic and Static Forces. **2022**, 1-7 0
- 123 3D nanocrystalline metal-organic framework materials for the improved output performance of triboelectric nanogenerators. 0
- 122 An in situ self-charging triboelectric air filter with high removal efficiency, ultra-low pressure drop, superior filtration stability, and robust service life. **2023**, 105, 108021 0
- 121 A triboelectric nanogenerator attached to a thermoacoustic heat engine for power generation. **2023**, 276, 116482 0
- 120 Tribo-electrostatic separation of binary mixtures from polymeric and food materials. **2023**, 121, 103772 0

119	Gigantic enhancement in response of heterostructured CeO ₂ /CdS nanospheres based self-powered CO ₂ gas sensor: A comparative study. 2023 , 377, 133085	0
118	Preparation and application of high performance PVDF/PS electrospinning film-based triboelectric nanogenerator. 2023 , 813, 140276	0
117	Flexible corrugated triboelectric nanogenerators for efficient biomechanical energy harvesting and human motion monitoring. 2023 , 106, 108033	1
116	Chemically modified MXene nanoflakes for enhancing the output performance of triboelectric nanogenerators. 2023 , 107, 108128	0
115	A multi-degree-of-freedom triboelectric energy harvester for dual-frequency vibration energy harvesting. 2023 , 188, 109951	0
114	Effect of testing modes and voltmeter resistance on mechano-electrical conversion of electrospun polyvinylidene fluoride nanofiber membranes. 2023 , 21, 100275	0
113	Planar acceleration sensor for UAV in cruise state based on single-electrode triboelectric nanogenerator. 2022 , 1-1	0
112	Nanogenerator-based bidirectional pressure sensor array and its demonstration in underwater invasive species detection.	1
111	Highly Sensitive Self-Powered Biomedical Applications Using Triboelectric Nanogenerator. 2022 , 13, 2065	1
110	A Bow-Drill Structured Triboelectric Nanogenerator for Marine Ranching Monitoring. 2201471	0
109	Engineering Triboelectric Charge in Natural Rubber/Ag Nanocomposite for Enhancing Electrical Output of a Triboelectric Nanogenerator.	1
108	A Self-Powered Flow Velocity Sensing System Based on Hybrid Piezo-Triboelectric Nanogenerator. 2201296	0
107	Dual-mode acceleration sensor of downhole drilling tools based on triboelectric nanogenerator. 2022 , 93, 125001	0
106	Triboelectric nanogenerators for smart agriculture.	0
105	Transparent, Stretchable, and Recyclable Triboelectric Nanogenerator Based on an Acid- and Alkali-Resistant Hydrogel.	0
104	Triboelectricity: New paradigms for energy harvesting and point-of-care applications. 2022 ,	0
103	Fiber-Based Triboelectric Nanogenerator for Mechanical Energy Harvesting and Its Application to a Human-Machine Interface. 2022 , 22, 9632	2
102	Thermal-Driven Soft-Contact Triboelectric Nanogenerator for Energy Harvesting and Industrial Cooling Water Monitoring. 2206269	0

- 101 Unprecedented Triboelectric Effect of Lignin on Enhancing the Electrical Outputs of Natural-Rubber-Based Triboelectric Nanogenerators (TENGs). ○
- 100 Dynamic Semiconductor Junctions for Mechanical-to-Electric Power Conversion. **2023**, 1-28 ○
- 99 Self-Powered Fine Dust Filtration Using Triboelectrification-Induced Electric Field. **2022**, 17, ○
- 98 Additive Manufacturing of Fiberglass-Reinforced Polymer Composites. **2023**, 315-334 ○
- 97 Triboelectric Energy-Harvesting Floor Tile. **2022**, 15, 8853 ○
- 96 Exalting Energy Scavenging for Triboelectric Nanogenerator using Silicon Carbide Particles Doped Polyvinylidene Difluoride Nanocomposite. **2022**, 108146 ○
- 95 A self-powered flexible gas-sensing system based on single-wall carbon nanotube films. **2022**, 3, 101163 ○
- 94 CNT-PDMS foams as self-powered humidity sensors based on triboelectric nanogenerators driven by finger tapping. **2023**, 13, ○
- 93 Probing Contact Electrification between Gas and Solid Surface. **2023**, 3, 1-11 ○
- 92 Scalable one-step wet-spinning of triboelectric fibers for large-area power and sensing textiles. ○
- 91 Editorial for the Special Issue on Smart Devices and Systems for Vibration Sensing and Energy Harvesting. **2023**, 14, 173 ○
- 90 Emerging Self-Powered Autonomous Sensing Triboelectric Fibers toward Future Wearable Human-Computer Interaction Devices. 2200044 ○
- 89 Electrode-free piezoelectric nanogenerator based on carbon black/polyvinylidene fluoride-hexafluoropropylene composite achieved via interface polarization effect. **2023**, 457, 141356 ○
- 88 Underwater hybrid energy harvesting based on TENG-MTEG for self-powered marine mammal condition monitoring system. **2023**, 21, 100301 ○
- 87 Triboelectric nanogenerator for neuromorphic electronics. **2023**, 2, 100014 ○
- 86 Extended bandwidth of 2DOF double impact triboelectric energy harvesting: Theoretical and experimental verification. **2023**, 333, 120593 ○
- 85 A rotating tower-like triboelectric nanogenerator for ultrahigh charge density breakthrough. **2023**, 108, 108204 ○
- 84 Self-Powered Wearable Breath Sensor cum-Nanogenerator using AuNR-rGO-PVDF Nanocomposite. **2023**, 1-1 ○

- 83 Reshaping the Endogenous Electric Field to Boost Wound Repair via Electrogenative Dressing. 2208395 ○
- 82 Dynamic molecular tunnel junctions based on self-assembled monolayer for high tunneling current triboelectricity generation. ○
- 81 2D materials for flexible electronics. **2023**, 169-206 ○
- 80 Pursuing Tribovoltaic Effect for Direct-Current Triboelectric Nanogenerator. ○
- 79 Modular design and fully packed triboelectric nanogenerator based on escapement mechanism for harvesting high entropy energy in harsh environments. **2023**, 109, 108266 ○
- 78 Leaf surface-microstructure inspired fabrication of fish gelatin-based triboelectric nanogenerator. **2023**, 109, 108231 ○
- 77 Nanogenerators for biomedical applications. **2023**, 35, 105493 ○
- 76 Comparison of Triboelectric Nanogenerator and Electromagnetic Generator. **2023**, 1-34 ○
- 75 Heat-induced ultrathin oxide layer blocks the current generation of Schottky nanogenerators. **2023**, 13, 025247 ○
- 74 More Than Energy Harvesting in Electret Electronics-Moving toward Next-Generation Functional System. 2214859 ○
- 73 Silicone-Based Multifunctional Thin Films with Improved Triboelectric and Sensing Performances via Chemically Interfacial Modification. **2023**, 8, 7135-7142 ○
- 72 Flexible pressure sensor based on polystyrene foam with superelasticity and ultra-wide range. **2023**, 32, 045006 ○
- 71 Strongly enhanced charge density via gradient nano-doping for high performance elastic-material-based triboelectric nanogenerators. **2023**, ○
- 70 Single-Electrode Triboelectric Nanogenerators Based on Ionic Conductive Hydrogel for Mechanical Energy Harvester and Smart Touch Sensor Applications. **2023**, 15, 16768-16777 ○
- 69 Decoupling piezoelectric and triboelectric signals from PENGs using the fast fourier transform. **2023**, 108445 ○
- 68 Self-healing fluorinated poly(urethane urea) for mechanically and environmentally stable, high performance, and versatile fully self-healing triboelectric nanogenerators. **2023**, 108, 108243 ○
- 67 Human motion recognition by a shoes-floor triboelectric nanogenerator and its application in fall detection. **2023**, 108, 108230 ○
- 66 Boost the voltage of a magnetoelastic generator via tuning the magnetic induction layer resistance. **2023**, 109, 108298 ○

- 65 A humidity- and environment-resisted high-performance triboelectric nanogenerator with superhydrophobic interface for energy harvesting and sensing. **2023**, 109, 108300 ○
- 64 A biocompatible, eco-friendly, and high-performance triboelectric nanogenerator based on sepiolite, bentonite, and kaolin decorated chitosan composite film. **2023**, 110, 108354 ○
- 63 Grounding strategy to promote the surface charge equilibrium and output performance of triboelectric nanogenerator. **2023**, 110, 108310 ○
- 62 Electrospun cellulose acetate nanofibrous composites for multi-responsive shape memory actuators and self-powered pressure sensors. **2023**, 313, 120868 ○
- 61 Research on Low-Frequency Vibration Monitoring Sensor Based on a Cantilever-Beam-Structured Triboelectric Nanogenerator. **2023**, 11, 838 ○
- 60 Wearable bistable triboelectric nanogenerator for harvesting torsional vibration energy from human motion. **2023**, 109, 108315 ○
- 59 An organic semiconductor/metal Schottky heterojunction based direct current triboelectric nanogenerator windmill for wind energy harvesting. **2023**, 109, 108302 ○
- 58 Improved magneto-mechano-electric response in electro-spun P(VDF-TrFE)-CNC@CoFe₂O₄ nanocomposites for non-contact energy harvester. **2023**, 950, 169931 ○
- 57 Emerging ultrasonic bioelectronics for personalized healthcare. **2023**, 136, 101110 ○
- 56 ZnO based triboelectric nanogenerator on textile platform for wearable sweat sensing application. **2023**, 108, 108212 ○
- 55 Molecule-Assembled Plasmonic Gold Nanoparticle Network for Piezophototronic and Human Activity Detections. **2023**, 25, ○
- 54 Adhesive tapes: From daily necessities to flexible smart electronics. **2023**, 10, 011305 ○
- 53 Optical phase of recursion hybrid visco ferromagnetic electromagnetic microscale. **2023**, 462, 128651 ○
- 52 Recent Progress in Self-Powered Wireless Sensors and Systems Based on TENG. **2023**, 23, 1329 ○
- 51 Self-powered flow sensing for automobile based on triboelectric nanogenerator with magnetic field modulation mechanism. **2023**, 108, 108233 1
- 50 Self-powered high-resolution smart insole system for plantar pressure mapping. **2023**, 1, ○
- 49 Multifunctional Nanogenerator-Integrated Metamaterial Concrete Systems for Smart Civil Infrastructure. **2023**, 35, 1
- 48 A self-powered sound-driven humidity sensor for wearable intelligent dehydration monitoring system. **2023**, 34, 195501 ○

- 47 Self-Powered Biosensors for Monitoring Human Physiological Changes. **2023**, 13, 236 ○
- 46 Natural Silkworm Cocoon-Based Hierarchically Architected Composite Triboelectric Nanogenerators for Biomechanical Energy Harvesting. ○
- 45 Recent Advances in Microfluidics-Based Electrochemical Sensors for Foodborne Pathogen Detection. **2023**, 13, 246 1
- 44 Effect of Centrifugal Force on Power Output of a Spin-Coated Poly(Vinylidene Fluoride-Trifluoroethylene)-Based Piezoelectric Nanogenerator. **2023**, 16, 1892 1
- 43 Low-cost triboelectric nanogenerator based on aseptic carton package. **2023**, 17, 100965 ○
- 42 Machine Learning-Enhanced Flexible Mechanical Sensing. **2023**, 15, ○
- 41 Charge-Accumulating-Flutter-Based Triboelectric Nanogenerator via Discharge Gateway. **2023**, 13, ○
- 40 Cellulose Gel Mechanoreceptors [Principles, Applications and Prospects. 2214317 ○
- 39 Bioresorbable Pressure Sensor and Its Applications in Abnormal Respiratory Event Identification. **2023**, 5, 1761-1769 ○
- 38 Smart Wearable Systems for Health Monitoring. **2023**, 23, 2479 1
- 37 Highly Flexible Triboelectric Nanogenerator Using Porous Carbon Nanotube Composites. **2023**, 15, 1135 ○
- 36 Transition metal chalcogenides for next-generation energy storage. ○
- 35 Recent Advances in Mechanical Vibration Energy Harvesters Based on Triboelectric Nanogenerators. 2300401 ○
- 34 Choice of Materials for Triboelectric Nanogenerators. **2023**, 1-50 ○
- 33 Ingenious integration of electroluminescent devices with natural triboelectrification for wearable display by using epidermal potential as stimulation bridge. **2023**, 137, 113627 ○
- 32 Stretchable Woven Fabric-Based Triboelectric Nanogenerator for Energy Harvesting and Self-Powered Sensing. **2023**, 13, 863 ○
- 31 3D Stitching Double Weave Fabric-Based Elastic Triboelectric Nanogenerator for Energy Harvesting and Self-Powered Sensing. **2023**, 16, 2284 ○
- 30 Smart Triboelectric Nanogenerators Toward Human-Oriented Technologies: Health Monitoring, Wound Healing, Drug Delivery. 2201500 ○

- 29 Surface engineering AgNW transparent conductive films for triboelectric nanogenerator and self-powered pressure sensor. **2023**, 462, 142170 ○
- 28 Mechatronics-enabled harvesting of polarized wind kinetic energy through novel bio-mimetic swaying devices. **2023**, ○
- 27 Non-equilibrium-Growing Aesthetic Ionic Skin for Fingertip-Like Strain-Undisturbed Tactile Sensation and Texture Recognition. ○
- 26 Ag@Cellulose Hybrid Filler for Boosting the Power Output of a Triboelectric Nanogenerator. **2023**, 15, 1295 ○
- 25 Robust Solid-Liquid Triboelectric Nanogenerators: Mechanisms, Strategies and Applications. 2300764 ○
- 24 Vacuum discharge triboelectric nanogenerator with ultrahigh current density. **2023**, 4, 101320 ○
- 23 Ultrasound-Driven Injectable and Fully Biodegradable Triboelectric Nanogenerators. 2201350 ○
- 22 Nonadjacent Wireless Electrotherapy for Tissue Repair by a 3D-Printed Bioresorbable Fully Soft Triboelectric Nanogenerator. **2023**, 23, 2927-2937 ○
- 21 Triboelectric Nanogenerators Based on Membranes Comprised of Polyurethane Fibers Loaded with Ethyl Cellulose and Barium Titanate Nanoparticles. **2023**, 6, 5675-5684 ○
- 20 Liquid-Metal-Based Stretchable Triboelectric Nanogenerators for Flowing-Liquid-Based Energy Harvesting and Self-Powered Sensor Applications. 2201902 ○
- 19 Conductive and anti-bacterial self-bundled nanofibrous yarns from electrostatic induction of Keggin polyoxometalates. 1-12 ○
- 18 Advances in Ultrathin Soft Sensors, Integrated Materials, and Manufacturing Technologies for Enhanced Monitoring of Human Physiological Signals. 2201294 ○
- 17 Advances in flexible sensors for intelligent perception system enhanced by artificial intelligence. ○
- 16 Recent progress in textile-based triboelectric force sensors for wearable electronics. **2023**, 6, ○
- 15 Fabrication of Advanced Cellulosic Triboelectric Materials via Dielectric Modulation. ○
- 14 Electrospun Nanofibers Hybrid Wrinkled Micropyramidal Architectures for Elastic Self-Powered Tactile and Motion Sensors. **2023**, 13, 1181 ○
- 13 Calotropis (Ark) Fibers based TENG: from Waste Material to Energy Source. **2022**, ○
- 12 Triboelectric nanogenerators: the beginning of blue dream. 2

- 11 Amplifying the Output of a Triboelectric Nanogenerator Using an Intermediary Layer of Gallium-Based Liquid Metal Particles. **2023**, 13, 1290
- 10 Triboelectric Nanogenerators for Civil Infrastructure Systems. **2023**, 1-23
- 9 Triboelectric nanogenerators and piezoelectric nanogenerators for preventing and treating heart diseases.
- 8 Recent Advances, Properties, Fabrication and Opportunities in Two-Dimensional Materials for their Potential Sustainable Applications. **2023**, 102780
- 7 Meta-mechanotronics for self-powered computation. **2023**,
- 6 Hybrid energy harvesting systems for self-powered sustainable water purification by harnessing ambient energy. **2023**, 17,
- 5 Statistical Modeling Enabled Design of High-performance Conductive Composite Fiber Materials for Energy Harvesting and Self-powered Sensing. **2023**, 143052
- 4 A triboelectric gait sensor system for human activity recognition and user identification. **2023**, 108473
- 3 Enhancement of Output Power and Durability of DLC-Based Sliding TENGs Modified with Self-Assembled Monolayers.
- 2 Irreversible electroporation for post-operative margin therapy to prevent cancer recurrence based on triboelectric nanogenerator driven balloon catheter. **2023**, 112, 108510
- 1 Digital mapping of surface turbulence status and aerodynamic stall on wings of a flying aircraft. **2023**, 14,