

Zhen Wen

List of Publications by Year in descending order

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110
papers

12,178
citations

20759

60
h-index

25716

108
g-index

110
all docs

110
docs citations

110
times ranked

8730
citing authors

#	ARTICLE	IF	CITATIONS
1	Self-powered textile for wearable electronics by hybridizing fiber-shaped nanogenerators, solar cells, and supercapacitors. <i>Science Advances</i> , 2016, 2, e1600097.	4.7	705
2	Standards and figure-of-merits for quantifying the performance of triboelectric nanogenerators. <i>Nature Communications</i> , 2015, 6, 8376.	5.8	644
3	Harvesting Low-Frequency (<math>< 5\text{ Hz}</math>) Irregular Mechanical Energy: A Possible Killer Application of Triboelectric Nanogenerator. <i>ACS Nano</i> , 2016, 10, 4797-4805.	7.3	606
4	Networks of Triboelectric Nanogenerators for Harvesting Water Wave Energy: A Potential Approach toward Blue Energy. <i>ACS Nano</i> , 2015, 9, 3324-3331.	7.3	509
5	Effective energy storage from a triboelectric nanogenerator. <i>Nature Communications</i> , 2016, 7, 10987.	5.8	407
6	Liquid-Metal-Based Super-Stretchable and Structure-Designable Triboelectric Nanogenerator for Wearable Electronics. <i>ACS Nano</i> , 2018, 12, 2027-2034.	7.3	353
7	All-in-One Shape-Adaptive Self-Charging Power Package for Wearable Electronics. <i>ACS Nano</i> , 2016, 10, 10580-10588.	7.3	290
8	A Wrinkled PEDOT:PSS Film Based Stretchable and Transparent Triboelectric Nanogenerator for Wearable Energy Harvesters and Active Motion Sensors. <i>Advanced Functional Materials</i> , 2018, 28, 1803684.	7.8	286
9	Largely enhanced triboelectric nanogenerator for efficient harvesting of water wave energy by soft contacted structure. <i>Nano Energy</i> , 2019, 57, 432-439.	8.2	278
10	A highly shape-adaptive, stretchable design based on conductive liquid for energy harvesting and self-powered biomechanical monitoring. <i>Science Advances</i> , 2016, 2, e1501624.	4.7	274
11	Electric Eel-Inspired Mechanically Durable and Super-Stretchable Nanogenerator for Deformable Power Source and Fully Autonomous Conformable Electronic Skin Applications. <i>Advanced Materials</i> , 2016, 28, 10024-10032.	11.1	273
12	Vitrimer Elastomer-Based Jigsaw Puzzle-Like Healable Triboelectric Nanogenerator for Self-Powered Wearable Electronics. <i>Advanced Materials</i> , 2018, 30, e1705918.	11.1	265
13	Blow-driven triboelectric nanogenerator as an active alcohol breath analyzer. <i>Nano Energy</i> , 2015, 16, 38-46.	8.2	255
14	Harvesting Broad Frequency Band Blue Energy by a Triboelectric-Electromagnetic Hybrid Nanogenerator. <i>ACS Nano</i> , 2016, 10, 6526-6534.	7.3	244
15	A Water-Proof Triboelectric-Electromagnetic Hybrid Generator for Energy Harvesting in Harsh Environments. <i>Advanced Energy Materials</i> , 2016, 6, 1501593.	10.2	243
16	Integrating a Silicon Solar Cell with a Triboelectric Nanogenerator via a Mutual Electrode for Harvesting Energy from Sunlight and Raindrops. <i>ACS Nano</i> , 2018, 12, 2893-2899.	7.3	229
17	Triboelectrification-Enabled Self-Powered Detection and Removal of Heavy Metal Ions in Wastewater. <i>Advanced Materials</i> , 2016, 28, 2983-2991.	11.1	204
18	Ultralight Cut-Paper-Based Self-Charging Power Unit for Self-Powered Portable Electronic and Medical Systems. <i>ACS Nano</i> , 2017, 11, 4475-4482.	7.3	201

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19	All-Plastic Materials Based Self-Charging Power System Composed of Triboelectric Nanogenerators and Supercapacitors. <i>Advanced Functional Materials</i> , 2016, 26, 1070-1076.	7.8	190
20	Fully Packaged Blue Energy Harvester by Hybridizing a Rolling Triboelectric Nanogenerator and an Electromagnetic Generator. <i>ACS Nano</i> , 2016, 10, 11369-11376.	7.3	181
21	Highly efficient self-healable and dual responsive hydrogel-based deformable triboelectric nanogenerators for wearable electronics. <i>Journal of Materials Chemistry A</i> , 2019, 7, 13948-13955.	5.2	163
22	Micro triboelectric ultrasonic device for acoustic energy transfer and signal communication. <i>Nature Communications</i> , 2020, 11, 4143.	5.8	156
23	Ultrasensitive ppb-level NO ₂ gas sensor based on WO ₃ hollow nanosphers doped with Fe. <i>Applied Surface Science</i> , 2018, 434, 891-897.	3.1	151
24	An Ultrarobust High-Performance Triboelectric Nanogenerator Based on Charge Replenishment. <i>ACS Nano</i> , 2015, 9, 5577-5584.	7.3	135
25	High-efficiency ramie fiber degumming and self-powered degumming wastewater treatment using triboelectric nanogenerator. <i>Nano Energy</i> , 2016, 22, 548-557.	8.2	132
26	3D Printing of Ultralight Biomimetic Hierarchical Graphene Materials with Exceptional Stiffness and Resilience. <i>Advanced Materials</i> , 2019, 31, e1902930.	11.1	130
27	Rhombus-shaped Co ₃ O ₄ nanorod arrays for high-performance gas sensor. <i>Sensors and Actuators B: Chemical</i> , 2013, 186, 172-179.	4.0	127
28	An anti-freezing hydrogel based stretchable triboelectric nanogenerator for biomechanical energy harvesting at sub-zero temperature. <i>Journal of Materials Chemistry A</i> , 2020, 8, 13787-13794.	5.2	126
29	Nanogenerators for Self-Powered Gas Sensing. <i>Nano-Micro Letters</i> , 2017, 9, 45.	14.4	119
30	Multifunctional power unit by hybridizing contact-separate triboelectric nanogenerator, electromagnetic generator and solar cell for harvesting blue energy. <i>Nano Energy</i> , 2017, 39, 608-615.	8.2	117
31	Spiral Steel Wire-Based Fiber-Shaped Stretchable and Tailorable Triboelectric Nanogenerator for Wearable Power Source and Active Gesture Sensor. <i>Nano-Micro Letters</i> , 2019, 11, 39.	14.4	114
32	Automatic Mode Transition Enabled Robust Triboelectric Nanogenerators. <i>ACS Nano</i> , 2015, 9, 12334-12343.	7.3	111
33	Coaxial Triboelectric Nanogenerator and Supercapacitor Fiber-Based Self-Charging Power Fabric. <i>ACS Applied Materials & Interfaces</i> , 2018, 10, 42356-42362.	4.0	108
34	Honeycomb-like NiO/ZnO heterostructured nanorods: photochemical synthesis, characterization, and enhanced UV detection performance. <i>Journal of Materials Chemistry C</i> , 2014, 2, 4606.	2.7	106
35	Near-infrared irradiation induced remote and efficient self-healable triboelectric nanogenerator for potential implantable electronics. <i>Nano Energy</i> , 2018, 51, 333-339.	8.2	106
36	Enhancing proliferation and migration of fibroblast cells by electric stimulation based on triboelectric nanogenerator. <i>Nano Energy</i> , 2019, 57, 600-607.	8.2	106

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37	An inductor-free auto-power-management design built-in triboelectric nanogenerators. <i>Nano Energy</i> , 2017, 31, 302-310.	8.2	104
38	Rolling Friction Enhanced Free-Standing Triboelectric Nanogenerators and their Applications in Self-Powered Electrochemical Recovery Systems. <i>Advanced Functional Materials</i> , 2016, 26, 1054-1062.	7.8	101
39	Largely Improving the Robustness and Lifetime of Triboelectric Nanogenerators through Automatic Transition between Contact and Noncontact Working States. <i>ACS Nano</i> , 2015, 9, 7479-7487.	7.3	100
40	Controllable synthesis of Co ₃ O ₄ crossed nanosheet arrays toward an acetone gas sensor. <i>Sensors and Actuators B: Chemical</i> , 2017, 238, 1052-1059.	4.0	98
41	All flexible electrospun papers based self-charging power system. <i>Nano Energy</i> , 2017, 38, 210-217.	8.2	97
42	Gas sensors based on ultrathin porous Co ₃ O ₄ nanosheets to detect acetone at low temperature. <i>RSC Advances</i> , 2015, 5, 59976-59982.	1.7	96
43	Self-Powered Vehicle Emission Testing System Based on Coupling of Triboelectric and Chemoresistive Effects. <i>Advanced Functional Materials</i> , 2018, 28, 1703420.	7.8	95
44	Triboelectric-Electromagnetic Hybrid Generator for Harvesting Blue Energy. <i>Nano-Micro Letters</i> , 2018, 10, 54.	14.4	92
45	A facile fluorine-mediated hydrothermal route to controlled synthesis of rhombus-shaped Co ₃ O ₄ nanorod arrays and their application in gas sensing. <i>Journal of Materials Chemistry A</i> , 2013, 1, 7511.	5.2	91
46	Charge-trapping-blocking layer for enhanced triboelectric nanogenerators. <i>Nano Energy</i> , 2020, 75, 105011.	8.2	91
47	Porous CoO Nanostructure Arrays Converted from Rhombic Co(OH)F and Needle-like Co(CO ₃) _{0.5} (OH)·11H ₂ O and Their Electrochemical Properties. <i>Journal of Physical Chemistry C</i> , 2013, 117, 20465-20473.	1.5	89
48	Advances in Healthcare Electronics Enabled by Triboelectric Nanogenerators. <i>Advanced Functional Materials</i> , 2020, 30, 2004673.	7.8	88
49	Self-Powered Electrochemical Synthesis of Polypyrrole from the Pulsed Output of a Triboelectric Nanogenerator as a Sustainable Energy System. <i>Advanced Functional Materials</i> , 2016, 26, 3542-3548.	7.8	87
50	Advances in self-powered triboelectric pressure sensors. <i>Journal of Materials Chemistry A</i> , 2021, 9, 20100-20130.	5.2	85
51	Flexible Self-Powered Real-Time Ultraviolet Photodetector by Coupling Triboelectric and Photoelectric Effects. <i>ACS Applied Materials & Interfaces</i> , 2020, 12, 19384-19392.	4.0	80
52	Fabrication of gas sensor based on mesoporous rhombus-shaped ZnO rod arrays. <i>Sensors and Actuators B: Chemical</i> , 2015, 208, 112-121.	4.0	79
53	Flexible self-charging power units for portable electronics based on folded carbon paper. <i>Nano Research</i> , 2018, 11, 4313-4322.	5.8	78
54	Triboelectric Nanogenerator Driven Self-Powered Photoelectrochemical Water Splitting Based on Hematite Photoanodes. <i>ACS Nano</i> , 2018, 12, 8625-8632.	7.3	76

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55	Mesoporous Co ₃ O ₄ nanoneedle arrays for high-performance gas sensor. <i>Sensors and Actuators B: Chemical</i> , 2014, 203, 873-879.	4.0	73
56	Synthesis of TiO ₂ decorated Co ₃ O ₄ acicular nanowire arrays and their application as an ethanol sensor. <i>Journal of Materials Chemistry A</i> , 2015, 3, 2794-2801.	5.2	73
57	Intermediate layer for enhanced triboelectric nanogenerator. <i>Nano Energy</i> , 2021, 79, 105439.	8.2	70
58	Emerging nanogenerator technology in China: A review and forecast using integrating bibliometrics, patent analysis and technology roadmapping methods. <i>Nano Energy</i> , 2018, 46, 322-330.	8.2	67
59	Atmospheric pressure difference driven triboelectric nanogenerator for efficiently harvesting ocean wave energy. <i>Nano Energy</i> , 2018, 54, 156-162.	8.2	65
60	Abrasion and Fracture Self-Healable Triboelectric Nanogenerator with Ultrahigh Stretchability and Long-Term Durability. <i>Advanced Functional Materials</i> , 2021, 31, 2105380.	7.8	65
61	Self-powered on-line ion concentration monitor in water transportation driven by triboelectric nanogenerator. <i>Nano Energy</i> , 2019, 62, 442-448.	8.2	63
62	Recent progress in self-powered multifunctional e-skin for advanced applications. <i>Exploration</i> , 2022, 2, .	5.4	61
63	High-performance flexible and broadband photodetectors based on PbS quantum dots/ZnO nanoparticles heterostructure. <i>Science China Materials</i> , 2019, 62, 225-235.	3.5	56
64	A liquid PEDOT:PSS electrode-based stretchable triboelectric nanogenerator for a portable self-charging power source. <i>Nanoscale</i> , 2019, 11, 7513-7519.	2.8	55
65	Blue Energy Collection toward All-Hours Self-Powered Chemical Energy Conversion. <i>Advanced Energy Materials</i> , 2020, 10, 2001041.	10.2	54
66	A two-step synthesis of nanosheet-covered fibers based on $\text{Fe}_2\text{O}_3/\text{NiO}$ composites towards enhanced acetone sensing. <i>Scientific Reports</i> , 2018, 8, 1705.	1.6	53
67	Self-driven photodetection based on impedance matching effect between a triboelectric nanogenerator and a MoS ₂ nanosheets photodetector. <i>Nano Energy</i> , 2019, 59, 492-499.	8.2	50
68	Impedance Matching Effect between a Triboelectric Nanogenerator and a Piezoresistive Pressure Sensor Induced Self-Powered Weighing. <i>Advanced Materials Technologies</i> , 2018, 3, 1800054.	3.0	49
69	Surface Engineering for Enhanced Triboelectric Nanogenerator. <i>Nanoenergy Advances</i> , 2021, 1, 58-80.	3.6	47
70	Interface Engineering for Efficient Raindrop Solar Cell. <i>ACS Nano</i> , 2022, 16, 5292-5302.	7.3	47
71	A Liquid-Solid Interface-Based Triboelectric Tactile Sensor with Ultrahigh Sensitivity of 21.48 kPa^{-1} . <i>Nano-Micro Letters</i> , 2022, 14, 88.	14.4	47
72	Toward self-powered photodetection enabled by triboelectric nanogenerators. <i>Journal of Materials Chemistry C</i> , 2018, 6, 11893-11902.	2.7	45

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73	Frequency-independent self-powered sensing based on capacitive impedance matching effect of triboelectric nanogenerator. <i>Nano Energy</i> , 2019, 65, 103984.	8.2	44
74	Rejuvenation of Senescent Bone Marrow Mesenchymal Stromal Cells by Pulsed Triboelectric Stimulation. <i>Advanced Science</i> , 2021, 8, e2100964.	5.6	38
75	Hybridized Nanogenerators for Multifunctional Self-Powered Sensing: Principles, Prototypes, and Perspectives. <i>IScience</i> , 2020, 23, 101813.	1.9	37
76	A half-wave rectifying triboelectric nanogenerator for self-powered water splitting towards hydrogen production. <i>Nano Energy</i> , 2022, 93, 106870.	8.2	37
77	Transparent, stretchable, temperature-stable and self-healing ionogel-based triboelectric nanogenerator for biomechanical energy collection. <i>Nano Research</i> , 2022, 15, 2060-2068.	5.8	36
78	Electron trapping & blocking effect enabled by MXene/TiO ₂ intermediate layer for charge regulation of triboelectric nanogenerators. <i>Nano Energy</i> , 2022, 98, 107236.	8.2	36
79	All-inorganic CsPbBr ₃ Perovskite Nanocrystals/2D Non-layered Cadmium Sulfide Selenide for High-performance Photodetectors by Energy Band Alignment Engineering. <i>Advanced Functional Materials</i> , 2021, 31, 2105051.	7.8	35
80	Bamboo-inspired self-powered triboelectric sensor for touch sensing and sitting posture monitoring. <i>Nano Energy</i> , 2022, 91, 106670.	8.2	35
81	Hybrid Triboelectric Nanogenerators: From Energy Complementation to Integration. <i>Research</i> , 2021, 2021, 9143762.	2.8	32
82	Defects induced ferromagnetism in ZnO nanowire arrays doped with copper. <i>CrystEngComm</i> , 2013, 15, 7887.	1.3	31
83	Hybridized Mechanical and Solar Energy-Driven Self-Powered Hydrogen Production. <i>Nano-Micro Letters</i> , 2020, 12, 88.	14.4	31
84	One-dimensional CdS _x Se ^{1-x} nanoribbons for high-performance rigid and flexible photodetectors. <i>Journal of Materials Chemistry C</i> , 2017, 5, 7521-7526.	2.7	29
85	PbS Quantum Dots/2D Nonlayered CdS _x Se ^{1-x} Nanosheet Hybrid Nanostructure for High-Performance Broadband Photodetectors. <i>ACS Applied Materials & Interfaces</i> , 2018, 10, 43887-43895.	4.0	29
86	A self-powered hydrogen leakage sensor based on impedance adjustable windmill-like triboelectric nanogenerator. <i>Nano Energy</i> , 2021, 89, 106453.	8.2	28
87	3D-printed endoplasmic reticulum rGO microstructure based self-powered triboelectric pressure sensor. <i>Chemical Engineering Journal</i> , 2022, 445, 136821.	6.6	28
88	Forecasting potential sensor applications of triboelectric nanogenerators through tech mining. <i>Nano Energy</i> , 2017, 35, 358-369.	8.2	24
89	Surface-microengineering for high-performance triboelectric tactile sensor via dynamically assembled ferrofluid template. <i>Nano Energy</i> , 2021, 87, 106215.	8.2	24
90	Humidity sensor based on mesoporous Al-doped NiO ultralong nanowires with enhanced ethanol sensing performance. <i>Journal of Materials Science: Materials in Electronics</i> , 2019, 30, 7121-7134.	1.1	23

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91	Bone Repairment via Mechanosensation of Piezo1 Using Wearable Pulsed Triboelectric Nanogenerator. Small, 2022, 18, .	5.2	23
92	Triggering interface potential barrier: A controllable tuning mechanism for electrochemical detection. Biosensors and Bioelectronics, 2016, 85, 869-875.	5.3	22
93	A fluorine-mediated hydrothermal method to synthesize mesoporous rhombic ZnO nanorod arrays and their gas sensor application. Dalton Transactions, 2013, 42, 15551.	1.6	21
94	Synthesis of Co ₃ O ₄ /Ta ₂ O ₅ heterostructure hollow nanospheres for enhanced room temperature ethanol gas sensor. Journal of Alloys and Compounds, 2017, 727, 436-443.	2.8	21
95	A Self-Powered Gas Sensor Based on Coupling Triboelectric Screening and Impedance Matching Effects. Advanced Materials Technologies, 2021, 6, 2100310.	3.0	21
96	Tetrahedral DNA mediated direct quantification of exosomes by contact-electrification effect. Nano Energy, 2022, 92, 106781.	8.2	21
97	Room-Temperature Direct Synthesis of PbSe Quantum Dot Inks for High-Detectivity Near-Infrared Photodetectors. ACS Applied Materials & Interfaces, 2021, 13, 51198-51204.	4.0	20
98	Transition metal pincer complex based self-healable, stretchable and transparent triboelectric nanogenerator. Nano Energy, 2020, 78, 105348.	8.2	19
99	One-step synthesized PbSe nanocrystal inks decorated 2D MoS ₂ heterostructure for high stability photodetectors with photoresponse extending to near-infrared region. Journal of Materials Chemistry C, 2022, 10, 2236-2244.	2.7	18
100	Triboelectric Nanogenerators for Cellular Bioelectrical Stimulation. Advanced Functional Materials, 2022, 32, .	7.8	17
101	All-in-One Self-Powered Human-Machine Interaction System for Wireless Remote Telemetry and Control of Intelligent Cars. Nanomaterials, 2021, 11, 2711.	1.9	16
102	Surface Morphology Analysis of Knit Structure-Based Triboelectric Nanogenerator for Enhancing the Transfer Charge. Nanoscale Research Letters, 2020, 15, 181.	3.1	15
103	Iodine-ion-induced Size-tunable Co ₃ O ₄ Nanowires and the Size-dependent Catalytic Performance for CO Oxidation. ChemCatChem, 2013, 5, 3576-3581.	1.8	11
104	Tailoring the morphology, optical and electrical properties of DC-sputtered ZnO:Al films by post thermal and plasma treatments. Materials Letters, 2013, 106, 125-128.	1.3	10
105	Brightness-enhanced electroluminescence driven by triboelectric nanogenerators through permittivity manipulation and impedance matching. Nano Energy, 2022, 98, 107308.	8.2	10
106	Triboelectric current stimulation alleviates in vitro cell migration and in vivo tumor metastasis. Nano Energy, 2022, 100, 107471.	8.2	10
107	Self-Powered Gyroscope Angle Sensor Based on Resistive Matching Effect of Triboelectric Nanogenerator. Advanced Materials Technologies, 2021, 6, 2100797.	3.0	9
108	An Integrated Self-Powered Real-Time Pedometer System with Ultrafast Response and High Accuracy. ACS Applied Materials & Interfaces, 2021, 13, 61789-61798.	4.0	6

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109	Design of Electrode Materials for Stretchable Triboelectric Nanogenerators. , 2020, , .		0
110	(Invited) Wrinkled PEDOT:PSS Film Based Stretchable and Transparent Triboelectric Sensor for Human Motion Monitor. ECS Meeting Abstracts, 2019, , .	0.0	0