

Philip X-L Feng

List of Publications by Citations

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153
papers

4,577
citations

30
h-index

65
g-index

204
ext. papers

5,633
ext. citations

6.7
avg, IF

5.74
L-index

#	Paper	IF	Citations
153	Zeptogram-scale nanomechanical mass sensing. <i>Nano Letters</i> , 2006 , 6, 583-6	11.5	789
152	Towards single-molecule nanomechanical mass spectrometry. <i>Nature Nanotechnology</i> , 2009 , 4, 445-50	28.7	492
151	Very High Frequency Silicon Nanowire Electromechanical Resonators. <i>Nano Letters</i> , 2007 , 7, 1953-1959	11.5	328
150	Polytype control of spin qubits in silicon carbide. <i>Nature Communications</i> , 2013 , 4, 1819	17.4	229
149	A self-sustaining ultrahigh-frequency nanoelectromechanical oscillator. <i>Nature Nanotechnology</i> , 2008 , 3, 342-6	28.7	215
148	High frequency MoS2 nanomechanical resonators. <i>ACS Nano</i> , 2013 , 7, 6086-91	16.7	199
147	Self-transducing silicon nanowire electromechanical systems at room temperature. <i>Nano Letters</i> , 2008 , 8, 1756-61	11.5	187
146	Low voltage nanoelectromechanical switches based on silicon carbide nanowires. <i>Nano Letters</i> , 2010 , 10, 2891-6	11.5	133
145	Piezoelectric nanoelectromechanical resonators based on aluminum nitride thin films. <i>Applied Physics Letters</i> , 2009 , 95, 103111	3.4	129
144	Black phosphorus nanoelectromechanical resonators vibrating at very high frequencies. <i>Nanoscale</i> , 2015 , 7, 877-84	7.7	105
143	VHF, UHF and microwave frequency nanomechanical resonators. <i>New Journal of Physics</i> , 2005 , 7, 247-247.9	7.7	86
142	Surface adsorbate fluctuations and noise in nanoelectromechanical systems. <i>Nano Letters</i> , 2011 , 11, 1753-9	11.5	78
141	Multilayer MoS2 transistors enabled by a facile dry-transfer technique and thermal annealing. <i>Journal of Vacuum Science and Technology B: Nanotechnology and Microelectronics</i> , 2014 , 32, 061203	1.3	74
140	Parametric nanomechanical amplification at very high frequency. <i>Nano Letters</i> , 2009 , 9, 3116-23	11.5	69
139	Environmental Instability and Degradation of Single- and Few-Layer WTe Nanosheets in Ambient Conditions. <i>Small</i> , 2016 , 12, 5802-5808	11	69
138	Electrically tunable single- and few-layer MoS nanoelectromechanical systems with broad dynamic range. <i>Science Advances</i> , 2018 , 4, eaao6653	14.3	67
137	Electrical breakdown of multilayer MoS2 field-effect transistors with thickness-dependent mobility. <i>Nanoscale</i> , 2014 , 6, 12383-90	7.7	63

136	Spatial mapping of multimode Brownian motions in high-frequency silicon carbide microdisk resonators. <i>Nature Communications</i> , 2014 , 5, 5158	17.4	52
135	Air damping of atomically thin MoS ₂ nanomechanical resonators. <i>Applied Physics Letters</i> , 2014 , 105, 023104	3.4	48
134	Resolving and Tuning Mechanical Anisotropy in Black Phosphorus via Nanomechanical Multimode Resonance Spectromicroscopy. <i>Nano Letters</i> , 2016 , 16, 5394-400	11.5	48
133	Tuning Optical Signatures of Single- and Few-Layer MoS by Blown-Bubble Bulge Straining up to Fracture. <i>Nano Letters</i> , 2017 , 17, 4568-4575	11.5	45
132	High Q silicon carbide microdisk resonator. <i>Applied Physics Letters</i> , 2014 , 104, 181103	3.4	44
131	Silicon carbide microdisk resonator. <i>Optics Letters</i> , 2013 , 38, 1304-6	3	44
130	Hexagonal boron nitride nanomechanical resonators with spatially visualized motion. <i>Microsystems and Nanoengineering</i> , 2017 , 3, 17038	7.7	39
129	Single- and few-layer WTe ₂ and their suspended nanostructures: Raman signatures and nanomechanical resonances. <i>Nanoscale</i> , 2016 , 8, 7854-60	7.7	37
128	Atomic layer MoS-graphene van der Waals heterostructure nanomechanical resonators. <i>Nanoscale</i> , 2017 , 9, 18208-18215	7.7	36
127	Fabrication of electrically conductive metal patterns at the surface of polymer films by microplasma-based direct writing. <i>ACS Applied Materials & Interfaces</i> , 2014 , 6, 3099-104	9.5	36
126	Design of black phosphorus 2D nanomechanical resonators by exploiting the intrinsic mechanical anisotropy. <i>2D Materials</i> , 2015 , 2, 021001	5.9	34
125	Effects of γ radiation on two-dimensional molybdenum disulfide (MoS ₂) nanomechanical resonators. <i>Applied Physics Letters</i> , 2016 , 108, 023106	3.4	33
124	Atomic Layer GaSe/MoS ₂ van der Waals Heterostructure Photodiodes with Low Noise and Large Dynamic Range. <i>ACS Photonics</i> , 2018 , 5, 2693-2700	6.3	32
123	Embracing structural nonidealities and asymmetries in two-dimensional nanomechanical resonators. <i>Scientific Reports</i> , 2014 , 4, 3919	4.9	29
122	Electrothermally Tunable Graphene Resonators Operating at Very High Temperature up to 1200 K. <i>Nano Letters</i> , 2018 , 18, 1678-1685	11.5	28
121	Large-scale arrays of single- and few-layer MoS ₂ nanomechanical resonators. <i>Nanoscale</i> , 2016 , 8, 10677-85	7.7	25
120	Ultrawide Band Gap β -GaO Nanomechanical Resonators with Spatially Visualized Multimode Motion. <i>ACS Applied Materials & Interfaces</i> , 2017 , 9, 43090-43097	9.5	23
119	Dynamic range of atomically thin vibrating nanomechanical resonators. <i>Applied Physics Letters</i> , 2014 , 104, 103109	3.4	22

118	. <i>IEEE Transactions on Power Electronics</i> , 2018 , 33, 7326-7337	7.2	22
117	The study of radiation effects in emerging micro and nano electro mechanical systems (M and NEMs). <i>Semiconductor Science and Technology</i> , 2017 , 32, 013005	1.8	21
116	Anisotropic Thermal Conductivity of Suspended Black Phosphorus Probed by Opto-Thermomechanical Resonance Spectromicroscopy. <i>Nano Letters</i> , 2018 , 18, 7683-7691	11.5	20
115	Environmental, thermal, and electrical susceptibility of black phosphorus field effect transistors. <i>Journal of Vacuum Science and Technology B: Nanotechnology and Microelectronics</i> , 2015 , 33, 052202	1.3	18
114	Atmospheric-Pressure Plasma Reduction of Metal Cation-Containing Polymer Films to Produce Electrically Conductive Nanocomposites by an Electrodiffusion Mechanism. <i>Plasma Chemistry and Plasma Processing</i> , 2016 , 36, 295-307	3.6	18
113	Beta gallium oxide (βGa ₂ O ₃) nanoelectromechanical transducer for dual-modality solar-blind ultraviolet light detection. <i>APL Materials</i> , 2019 , 7, 022523	5.7	17
112	Hexagonal Boron Nitride Phononic Crystal Waveguides. <i>ACS Photonics</i> , 2019 , 6, 3225-3232	6.3	17
111	Scanning electron microscopy characterization of structural features in suspended and non-suspended graphene by customized CVD growth. <i>Diamond and Related Materials</i> , 2015 , 54, 64-73	3.5	15
110	All-dry transferred single- and few-layer MoS ₂ field effect transistor with enhanced performance by thermal annealing. <i>Journal of Applied Physics</i> , 2018 , 123, 025701	2.5	14
109	Discerning Black Phosphorus Crystal Orientation and Anisotropy by Polarized Reflectance Measurement. <i>ACS Applied Materials & Interfaces</i> , 2018 , 10, 25629-25637	9.5	14
108	Silicon carbide (SiC) nanoelectromechanical switches and logic gates with long cycles and robust performance in ambient air and at high temperature 2013 ,		13
107	2013 ,		12
106	Controlling Polarity of MoTe Transistors for Monolithic Complementary Logic Schottky Contact Engineering. <i>ACS Nano</i> , 2020 , 14, 1457-1467	16.7	12
105	Effects of asymmetric Schottky contacts on photoresponse in tungsten diselenide (WSe ₂) phototransistor. <i>Journal of Applied Physics</i> , 2017 , 122, 085704	2.5	11
104	High frequency top-down junction-less silicon nanowire resonators. <i>Nanotechnology</i> , 2013 , 24, 435203	3.4	11
103	Interferometric Motion Detection in Atomic Layer 2D Nanostructures: Visualizing Signal Transduction Efficiency and Optimization Pathways. <i>Scientific Reports</i> , 2016 , 6, 28923	4.9	11
102	Study of Energy Loss Mechanisms in AlN-Based Piezoelectric Length Extensional-Mode Resonators. <i>Journal of Microelectromechanical Systems</i> , 2019 , 28, 619-627	2.5	10
101	Extraction of a low-current discharge from a microplasma for nanoscale patterning applications at atmospheric pressure. <i>Journal of Vacuum Science and Technology B: Nanotechnology and Microelectronics</i> , 2012 , 30, 010603	1.3	10

100	Very High-Frequency Silicon Carbide Microdisk Resonators With Multimode Responses in Water for Particle Sensing. <i>Journal of Microelectromechanical Systems</i> , 2019 , 28, 941-953	2.5	9
99	6H-SiC microdisk torsional resonators in a Smart-cut Technology. <i>Applied Physics Letters</i> , 2014 , 104, 091906	3.4	9
98	Synthesis and characterization of Ga ₂ O ₃ nanosheets on 3C-SiC-on-Si by low pressure chemical vapor deposition. <i>Journal of Vacuum Science and Technology B: Nanotechnology and Microelectronics</i> , 2017 , 35, 011208	1.3	8
97	Gate-Tuned Temperature in a Hexagonal Boron Nitride-Encapsulated 2-D Semiconductor Device. <i>IEEE Transactions on Electron Devices</i> , 2018 , 65, 4068-4072	2.9	8
96	Culturing and probing physical behavior of individual breast cancer cells on SiC microdisk resonators 2015 ,		7
95	β-Ga ₂ O ₃ NEMS Oscillator for Real-Time Middle Ultraviolet (MUV) Light Detection. <i>IEEE Electron Device Letters</i> , 2018 , 39, 1230-1233	4.4	7
94	Silicon nanowire and cantilever electromechanical switches with integrated piezoresistive transducers 2013 ,		7
93	Dual-gate silicon carbide (SiC) lateral nanoelectromechanical switches 2013 ,		7
92	MEMS/NEMS Devices and Applications. <i>Springer Handbooks</i> , 2017 , 395-429	1.3	7
91	. <i>IEEE Journal of the Electron Devices Society</i> , 2015 , 3, 323-335	2.3	7
90	Two-dimensional nanoelectromechanical systems (2D NEMS) via atomically-thin semiconducting crystals vibrating at radio frequencies 2014 ,		7
89	Time-domain AC characterization of silicon carbide (SiC) nanoelectromechanical switches toward high-speed operations 2013 ,		7
88	Standard and inverse microscale Chladni figures in liquid for dynamic patterning of microparticles on chip. <i>Journal of Applied Physics</i> , 2018 , 124, 164901	2.5	7
87	Smart-cut 6H-silicon carbide (SiC) microdisk torsional resonators with sensitive photon radiation detection 2014 ,		6
86	Silicon carbide (SiC) top-down nanowire electromechanical resonators 2009 ,		6
85	Silicon carbide (SiC) membrane nanomechanical resonators with multiple vibrational modes 2011 ,		6
84	A MEMS lens scanner based on serpentine electrothermal bimorph actuators for large axial tuning. <i>Optics Express</i> , 2020 , 28, 23439-23453	3.3	6
83	Polarization sensitive black phosphorus nanomechanical resonators. <i>Optical Materials Express</i> , 2019 , 9, 526	2.6	6

82	Ultrawide Frequency Tuning of Atomic Layer van der Waals Heterostructure Electromechanical Resonators. <i>Nano Letters</i> , 2021 , 21, 5508-5515	11.5	6
81	All-electrical readout of atomically-thin MoS ₂ nanoelectromechanical resonators in the VHF band 2016 ,		6
80	Young's modulus and corresponding orientation in α -Ga ₂ O ₃ thin films resolved by nanomechanical resonators. <i>Applied Physics Letters</i> , 2021 , 119, 013505	3.4	6
79	Electromechanical coupling and design considerations in single-layer MoS ₂ suspended-channel transistors and resonators. <i>Nanoscale</i> , 2015 , 7, 19921-9	7.7	5
78	Interrogating contact-mode silicon carbide (SiC) nanoelectromechanical switching dynamics by ultrasensitive laser interferometry 2014 ,		5
77	Carbon nanofiber high frequency nanomechanical resonators. <i>Nanoscale</i> , 2017 , 9, 11864-11870	7.7	5
76	Amorphous Silicon Carbide (α -SiC) Thin Square Membranes for Resonant Micromechanical Devices. <i>Materials Science Forum</i> , 2012 , 717-720, 533-536	0.4	5
75	Straining and Tuning Atomic Layer Nanoelectromechanical Resonators via Comb-Drive MEMS Actuators. <i>Advanced Materials Technologies</i> , 2021 , 6, 2000794	6.8	5
74	Probing heavy ion radiation effects in silicon carbide (SiC) via 3D integrated multimode vibrating diaphragms. <i>Applied Physics Letters</i> , 2019 , 114, 101901	3.4	4
73	High frequency torsional-mode nanomechanical resonators enabled by very thin nanocrystalline diamond diaphragms. <i>Diamond and Related Materials</i> , 2015 , 54, 19-25	3.5	4
72	Frequency Tuning of Graphene Nanoelectromechanical Resonators via Electrostatic Gating. <i>Micromachines</i> , 2018 , 9,	3.3	4
71	2017 ,		4
70	Probing contact-mode characteristics of silicon nanowire electromechanical systems with embedded piezoresistive transducers. <i>Journal of Micromechanics and Microengineering</i> , 2015 , 25, 095014 ²		4
69	Phase Noise and Frequency Stability of Very-High Frequency Silicon Nanowire Nanomechanical Resonators 2007 ,		4
68	A Programmable Sustaining Amplifier for Flexible Multimode MEMS-Referenced Oscillators. <i>IEEE Transactions on Circuits and Systems I: Regular Papers</i> , 2019 , 66, 1405-1418	3.9	4
67	Single-crystal 3C-SiC-on-insulator platform for integrated quantum photonics. <i>Optics Express</i> , 2021 , 29, 1011-1022	3.3	4
66	A Temperature-Compensated Single-Crystal Silicon-on-Insulator (SOI) MEMS Oscillator with a CMOS Amplifier Chip. <i>Micromachines</i> , 2018 , 9,	3.3	4
65	Local-gate electrical actuation, detection, and tuning of atomic-layer MoS ₂ nanoelectromechanical resonators 2017 ,		3

64	3C-SiC microdisk mechanical resonators with multimode resonances at radio frequencies. <i>Journal of Micromechanics and Microengineering</i> , 2017 , 27, 074001	2	3
63	NEMS switches: Opportunities and challenges in emerging IC technologies 2015 ,		3
62	A battery-less, 255 nA quiescent current temperature sensor with voltage regulator fully powered by harvesting ambient vibrational energy 2017 ,		3
61	Free-Standing Γ -Ga ₂ O ₃ Thin Diaphragms. <i>Journal of Electronic Materials</i> , 2018 , 47, 973-981	1.9	3
60	All-electrical transduction of black phosphorus tunable 2D nanoelectromechanical resonators 2018 ,		3
59	A programmable CMOS feedback IC for reconfigurable MEMS-referenced oscillators 2016 ,		3
58	Temperature dependence of torsional and flexural modes in 6H-SiC microdisk resonators 2014 ,		3
57	mm-Scale and MEMS piezoelectric energy harvesters powering on-chip CMOS temperature sensing for IoT applications 2017 ,		3
56	Calibrating temperature coefficient of frequency (TCF) and thermal expansion coefficient (TEC) of MoS ₂ nanomechanical resonators 2015 ,		3
55	Two-dimensional MoS ₂ nanomechanical resonators freely suspended on microtrenches on flexible substrate 2015 ,		3
54	High frequency graphene nanomechanical resonators and transducers 2012 ,		3
53	Nanomechanical non-volatile memory for computing at extreme 2013 ,		3
52	Optical contrast signatures of hexagonal boron nitride on a device platform. <i>Optical Materials Express</i> , 2019 , 9, 1223	2.6	3
51	Electrodynamic Force, Casimir Effect, and Stiction Mitigation in Silicon Carbide Nanoelectromechanical Switches. <i>Small</i> , 2020 , 16, e2005594	11	3
50	Electromechanical coupling and motion transduction in Γ -Ga ₂ O ₃ vibrating channel transistors. <i>Applied Physics Letters</i> , 2020 , 117, 243504	3-4	3
49	Cavity quantum electrodynamics design with single photon emitters in hexagonal boron nitride. <i>Applied Physics Letters</i> , 2021 , 118, 244003	3-4	3
48	Single- and few-layer transfer-printed CVD MoS ₂ nanomechanical resonators with enhancement by thermal annealing 2016 ,		3
47	Development of Dual-Frequency PMUT Arrays Based on Thin Ceramic PZT for Endoscopic Photoacoustic Imaging.. <i>Journal of Microelectromechanical Systems</i> , 2021 , 30, 770-782	2.5	3

46	Hexagonal boron nitride (h-BN) nanomechanical resonators with temperature-dependent multimode operations 2015,		2
45	2020,		2
44	GaN/AlN Heterostructure Micromechanical Self-Sustained Oscillator for Middle Ultraviolet (MUV) Light Detection 2019,		2
43	Atomically-thin MoS ₂ resonators for pressure sensing 2014,		2
42	3C-SiC Nanobeam Optomechanical Crystals 2014,		2
41	Energetic ion radiation effects on a silicon carbide (SiC) multimode resonating diaphragm 2017,		2
40	Pressure dependence of thin polycrystalline silicon carbide diaphragm resonators 2012,		2
39	Focused Ion-Beam (FIB) Nanomachining of Silicon Carbide (SiC) Stencil Masks for Nanoscale Patterning. <i>Materials Science Forum</i> , 2012 , 717-720, 889-892	0.4	2
38	Characterization of Plasma Synthesized Vertical Carbon Nanofibers for Nanoelectronics Applications. <i>Materials Research Society Symposia Proceedings</i> , 2012 , 1451, 117-122		2
37	Quality Factors and Energy Losses of Single-Crystal Silicon Nanowire Electromechanical Resonators 2007,		2
36	A perspective on β -Ga ₂ O ₃ micro/nanoelectromechanical systems. <i>Applied Physics Letters</i> , 2022 , 120, 040502	3.4	2
35	Thermal hysteresis controlled reconfigurable MoS nanomechanical resonators. <i>Nanoscale</i> , 2021 , 13, 18089-18095		2
34	Determination of Elastic Modulus of Silicon Carbide (SiC) Thin Diaphragms via Mode-Dependent Duffing Nonlinear Resonances. <i>Journal of Microelectromechanical Systems</i> , 2020 , 29, 783-789	2.5	2
33	Electronic Applications of Black Phosphorus Thin Films. <i>ACS Symposium Series</i> , 2019 , 179-194	0.4	2
32	2018,		2
31	Thermal Response and TC f of GaN/AlN Heterostructure Multimode Micro String Resonators From 0 °C Up to 325 °C. <i>Journal of Microelectromechanical Systems</i> , 2021 , 30, 521-529	2.5	2
30	Atomic Layer MoTe Field-Effect Transistors and Monolithic Logic Circuits Configured by Scanning Laser Annealing.. <i>ACS Nano</i> , 2021 , 15, 19733-19742	16.7	2
29	Wide bandgap β -Ga ₂ O ₃ nanomechanical resonators for detection of middle-ultraviolet (MUV) photon radiation 2017,		1

28	Dynamic manipulation and patterning of breast cancer cells in biosolution 2017 ,		1
27	Imaging Multimode Vibrations in High-Frequency Aluminum Nitride Piezoelectric Nanomembrane Resonators 2019 ,		1
26	Molybdenum disulfide (MoS ₂) nanoelectromechanical resonators with on-chip aluminum nitride (AlN) piezoelectric excitation 2018 ,		1
25	Mode-Dependent Anchor Loss in Silicon Carbide Micromechanical Disk Resonators 2019 ,		1
24	Tracing and Resolving Microparticle Aquatic Mass Motion and Distribution on Multimode Silicon Carbide Microdisk Resonators 2019 ,		1
23	High-Frequency Hexagonal Boron Nitride (h-BN) Phononic Waveguides 2019 ,		1
22	Exploring parametric resonance effects in bulk-mode CMOS-MEMS resonators 2014 ,		1
21	High-frequency SiC microdisk resonators operating in water with responses to H ₂ O ₂ and NH ₄ OH 2014 ,		1
20	Biomedical Implantable Systems [History, Design, and Trends 2014 , 381-410		1
19	Observation of strong temperature hysteresis in molybdenum disulfide (MoS ₂) vibrating nanomechanical resonators 2015 ,		1
18	Capacitance-voltage (C-V) characterization in very thin suspended silicon nanowires for NEMS-CMOS integration in 160nm Silicon-on-Insulator (SOI) 2015 ,		1
17	Multimode characteristics of high-frequency CMOS-MEMS resonators 2014 ,		1
16	Diaphragm-based microsystems using thin film silicon carbide 2012 ,		1
15	MEMS wireless implantable systems: historical review and perspectives 2013 , 401-423		1
14	A piezoresistive CMOS-MEMS resonator with high Q and low TCF 2013 ,		1
13	Effects of Ion-Induced Displacement Damage on GaN/AlN MEMS Resonators. <i>IEEE Transactions on Nuclear Science</i> , 2022 , 1-1	1.7	1
12	Giant parametric amplification and spectral narrowing in atomically thin MoS ₂ nanomechanical resonators. <i>Applied Physics Reviews</i> , 2022 , 9, 011404	17.3	1
11	Hexagonal boron nitride (h-BN) 2D nanoscale devices for classical and quantum signal transduction 2019 ,		1

10	2016,			1
9	Resonant Nanoelectromechanical Systems (NEMS): Progress and Emerging Frontiers 2020,			1
8	Investigation of Electrostatic Gating in Two-Dimensional Transitional Metal Dichalcogenide (TMDC) Field Effect Transistors (FETs) 2018,			1
7	Nanoelectromechanical Resonators Enabled by Si-Doped Semiconducting β -Ga ₂ O ₃ Nanobelts 2018			1
6	Nano Carbon 1D and 2D Nanomechanical Resonators. <i>Materials Research Society Symposia Proceedings</i> , 2014 , 1693, 37			0
5	Design of strongly nonlinear graphene nanoelectromechanical systems in quantum regime. <i>Applied Physics Letters</i> , 2022 , 120, 014001	3-4		0
4	Resolving Mechanical Properties and Morphology Evolution of Free-Standing Ferroelectric Hf _{0.5} Zr _{0.5} O ₂ . <i>Advanced Engineering Materials</i> , 2021 , 23, 2101221	3-5		0
3	Self-sustaining MoS ₂ nanomechanical oscillators and feedback cooling. <i>Applied Physics Letters</i> , 2021 , 119, 243506	3-4		0
2	Nanoelectromechanical Systems Secure FPGA and Security Primitives 2017 , 307-326			
1	Nanoelectromechanical Systems: Straining and Tuning Atomic Layer Nanoelectromechanical Resonators via Comb-Drive MEMS Actuators (Adv. Mater. Technol. 2/2021). <i>Advanced Materials Technologies</i> , 2021 , 6, 2170008			6.8