

# 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	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
2	Bamboo-inspired self-powered triboelectric sensor for touch sensing and sitting posture monitoring. <i>Nano Energy</i> , 2022, 91, 106670.	8.2	35
3	Tetrahedral DNA mediated direct quantification of exosomes by contact-electrification effect. <i>Nano Energy</i> , 2022, 92, 106781.	8.2	21
4	One-step synthesized PbSe nanocrystal inks decorated 2D MoS <sub>2</sub> heterostructure for high stability photodetectors with photoresponse extending to near-infrared region. <i>Journal of Materials Chemistry C</i> , 2022, 10, 2236-2244.	2.7	18
5	A half-wave rectifying triboelectric nanogenerator for self-powered water splitting towards hydrogen production. <i>Nano Energy</i> , 2022, 93, 106870.	8.2	37
6	Recent progress in self-powered multifunctional e-skin for advanced applications. <i>Exploration</i> , 2022, 2, .	5.4	61
7	Interface Engineering for Efficient Raindrop Solar Cell. <i>ACS Nano</i> , 2022, 16, 5292-5302.	7.3	47
8	A Liquid-Solid Interface-Based Triboelectric Tactile Sensor with Ultrahigh Sensitivity of 21.48 kPa <sup>-1</sup> . <i>Nano-Micro Letters</i> , 2022, 14, 88.	14.4	47
9	Electron trapping & blocking effect enabled by MXene/TiO <sub>2</sub> intermediate layer for charge regulation of triboelectric nanogenerators. <i>Nano Energy</i> , 2022, 98, 107236.	8.2	36
10	Brightness-enhanced electroluminescence driven by triboelectric nanogenerators through permittivity manipulation and impedance matching. <i>Nano Energy</i> , 2022, 98, 107308.	8.2	10
11	3D-printed endoplasmic reticulum rGO microstructure based self-powered triboelectric pressure sensor. <i>Chemical Engineering Journal</i> , 2022, 445, 136821.	6.6	28
12	Triboelectric Nanogenerators for Cellular Bioelectrical Stimulation. <i>Advanced Functional Materials</i> , 2022, 32, .	7.8	17
13	Bone Repairment via Mechanosensation of Piezo1 Using Wearable Pulsed Triboelectric Nanogenerator. <i>Small</i> , 2022, 18, .	5.2	23
14	Triboelectric current stimulation alleviates in vitro cell migration and in vivo tumor metastasis. <i>Nano Energy</i> , 2022, 100, 107471.	8.2	10
15	Intermediate layer for enhanced triboelectric nanogenerator. <i>Nano Energy</i> , 2021, 79, 105439.	8.2	70
16	Advances in self-powered triboelectric pressure sensors. <i>Journal of Materials Chemistry A</i> , 2021, 9, 20100-20130.	5.2	85
17	Hybrid Triboelectric Nanogenerators: From Energy Complementation to Integration. <i>Research</i> , 2021, 2021, 9143762.	2.8	32
18	All-inorganic CsPbBr <sub>3</sub> 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

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19	Rejuvenation of Senescent Bone Marrow Mesenchymal Stromal Cells by Pulsed Triboelectric Stimulation. <i>Advanced Science</i> , 2021, 8, e2100964.	5.6	38
20	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
21	Self-Powered Gyroscope Angle Sensor Based on Resistive Matching Effect of Triboelectric Nanogenerator. <i>Advanced Materials Technologies</i> , 2021, 6, 2100797.	3.0	9
22	A Self-Powered Gas Sensor Based on Coupling Triboelectric Screening and Impedance Matching Effects. <i>Advanced Materials Technologies</i> , 2021, 6, 2100310.	3.0	21
23	Surface-microengineering for high-performance triboelectric tactile sensor via dynamically assembled ferrofluid template. <i>Nano Energy</i> , 2021, 87, 106215.	8.2	24
24	Surface Engineering for Enhanced Triboelectric Nanogenerator. <i>Nanoenergy Advances</i> , 2021, 1, 58-80.	3.6	47
25	A self-powered hydrogen leakage sensor based on impedance adjustable windmill-like triboelectric nanogenerator. <i>Nano Energy</i> , 2021, 89, 106453.	8.2	28
26	Room-Temperature Direct Synthesis of PbSe Quantum Dot Inks for High-Detectivity Near-Infrared Photodetectors. <i>ACS Applied Materials &amp; Interfaces</i> , 2021, 13, 51198-51204.	4.0	20
27	All-in-One Self-Powered Human-Machine Interaction System for Wireless Remote Telemetry and Control of Intelligent Cars. <i>Nanomaterials</i> , 2021, 11, 2711.	1.9	16
28	An Integrated Self-Powered Real-Time Pedometer System with Ultrafast Response and High Accuracy. <i>ACS Applied Materials &amp; Interfaces</i> , 2021, 13, 61789-61798.	4.0	6
29	Surface Morphology Analysis of Knit Structure-Based Triboelectric Nanogenerator for Enhancing the Transfer Charge. <i>Nanoscale Research Letters</i> , 2020, 15, 181.	3.1	15
30	Hybridized Nanogenerators for Multifunctional Self-Powered Sensing: Principles, Prototypes, and Perspectives. <i>IScience</i> , 2020, 23, 101813.	1.9	37
31	Advances in Healthcare Electronics Enabled by Triboelectric Nanogenerators. <i>Advanced Functional Materials</i> , 2020, 30, 2004673.	7.8	88
32	Blue Energy Collection toward All-Hours Self-Powered Chemical Energy Conversion. <i>Advanced Energy Materials</i> , 2020, 10, 2001041.	10.2	54
33	Transition metal pincer complex based self-healable, stretchable and transparent triboelectric nanogenerator. <i>Nano Energy</i> , 2020, 78, 105348.	8.2	19
34	Micro triboelectric ultrasonic device for acoustic energy transfer and signal communication. <i>Nature Communications</i> , 2020, 11, 4143.	5.8	156
35	Charge-trapping-blocking layer for enhanced triboelectric nanogenerators. <i>Nano Energy</i> , 2020, 75, 105011.	8.2	91
36	Flexible Self-Powered Real-Time Ultraviolet Photodetector by Coupling Triboelectric and Photoelectric Effects. <i>ACS Applied Materials &amp; Interfaces</i> , 2020, 12, 19384-19392.	4.0	80

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37	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
38	Design of Electrode Materials for Stretchable Triboelectric Nanogenerators. , 2020, , .		0
39	Hybridized Mechanical and Solar Energy-Driven Self-Powered Hydrogen Production. <i>Nano-Micro Letters</i> , 2020, 12, 88.	14.4	31
40	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
41	3D Printing of Ultralight Biomimetic Hierarchical Graphene Materials with Exceptional Stiffness and Resilience. <i>Advanced Materials</i> , 2019, 31, e1902930.	11.1	130
42	Frequency-independent self-powered sensing based on capacitive impedance matching effect of triboelectric nanogenerator. <i>Nano Energy</i> , 2019, 65, 103984.	8.2	44
43	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
44	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
45	Self-driven photodetection based on impedance matching effect between a triboelectric nanogenerator and a MoS <sub>2</sub> nanosheets photodetector. <i>Nano Energy</i> , 2019, 59, 492-499.	8.2	50
46	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
47	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
48	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
49	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
50	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
51	(Invited) Wrinkled PEDOT:PSS Film Based Stretchable and Transparent Triboelectric Sensor for Human Motion Monitor. <i>ECS Meeting Abstracts</i> , 2019, , .	0.0	0
52	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
53	Vitrimer Elastomer-Based Jigsaw Puzzle-Like Healable Triboelectric Nanogenerator for Self-Powered Wearable Electronics. <i>Advanced Materials</i> , 2018, 30, e1705918.	11.1	265
54	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

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55	Integrating a Silicon Solar Cell with a Triboelectric Nanogenerator via a Mutual Electrode for Harvesting Energy from Sunlight and Raindrops. ACS Nano, 2018, 12, 2893-2899.	7.3	229
56	A two-step synthesis of nanosheet-covered fibers based on $\text{Fe}_2\text{O}_3/\text{NiO}$ composites towards enhanced acetone sensing. Scientific Reports, 2018, 8, 1705.	1.6	53
57	Liquid-Metal-Based Super-Stretchable and Structure-Designable Triboelectric Nanogenerator for Wearable Electronics. ACS Nano, 2018, 12, 2027-2034.	7.3	353
58	Self-Powered Vehicle Emission Testing System Based on Coupling of Triboelectric and Chemoresistive Effects. Advanced Functional Materials, 2018, 28, 1703420.	7.8	95
59	Flexible self-charging power units for portable electronics based on folded carbon paper. Nano Research, 2018, 11, 4313-4322.	5.8	78
60	Ultrasensitive ppb-level $\text{NO}_2$ gas sensor based on $\text{WO}_3$ hollow nanosphers doped with Fe. Applied Surface Science, 2018, 434, 891-897.	3.1	151
61	PbS Quantum Dots/2D Nonlayered $\text{CdS}/\text{Se}$ Nanosheet Hybrid Nanostructure for High-Performance Broadband Photodetectors. ACS Applied Materials & Interfaces, 2018, 10, 43887-43895.	4.0	29
62	Coaxial Triboelectric Nanogenerator and Supercapacitor Fiber-Based Self-Charging Power Fabric. ACS Applied Materials & Interfaces, 2018, 10, 42356-42362.	4.0	108
63	Atmospheric pressure difference driven triboelectric nanogenerator for efficiently harvesting ocean wave energy. Nano Energy, 2018, 54, 156-162.	8.2	65
64	Triboelectric-Electromagnetic Hybrid Generator for Harvesting Blue Energy. Nano-Micro Letters, 2018, 10, 54.	14.4	92
65	Near-infrared irradiation induced remote and efficient self-healable triboelectric nanogenerator for potential implantable electronics. Nano Energy, 2018, 51, 333-339.	8.2	106
66	Triboelectric Nanogenerator Driven Self-Powered Photoelectrochemical Water Splitting Based on Hematite Photoanodes. ACS Nano, 2018, 12, 8625-8632.	7.3	76
67	A Wrinkled PEDOT:PSS Film Based Stretchable and Transparent Triboelectric Nanogenerator for Wearable Energy Harvesters and Active Motion Sensors. Advanced Functional Materials, 2018, 28, 1803684.	7.8	286
68	Toward self-powered photodetection enabled by triboelectric nanogenerators. Journal of Materials Chemistry C, 2018, 6, 11893-11902.	2.7	45
69	Ultralight Cut-Paper-Based Self-Charging Power Unit for Self-Powered Portable Electronic and Medical Systems. ACS Nano, 2017, 11, 4475-4482.	7.3	201
70	Nanogenerators for Self-Powered Gas Sensing. Nano-Micro Letters, 2017, 9, 45.	14.4	119
71	All flexible electrospun papers based self-charging power system. Nano Energy, 2017, 38, 210-217.	8.2	97
72	Forecasting potential sensor applications of triboelectric nanogenerators through tech mining. Nano Energy, 2017, 35, 358-369.	8.2	24

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73	An inductor-free auto-power-management design built-in triboelectric nanogenerators. <i>Nano Energy</i> , 2017, 31, 302-310.	8.2	104
74	Synthesis of Co <sub>3</sub> O <sub>4</sub> /Ta <sub>2</sub> O <sub>5</sub> heterostructure hollow nanospheres for enhanced room temperature ethanol gas sensor. <i>Journal of Alloys and Compounds</i> , 2017, 727, 436-443.	2.8	21
75	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
76	One-dimensional CdS <sub>x</sub> Se <sub>1-x</sub> nanoribbons for high-performance rigid and flexible photodetectors. <i>Journal of Materials Chemistry C</i> , 2017, 5, 7521-7526.	2.7	29
77	Controllable synthesis of Co <sub>3</sub> O <sub>4</sub> crossed nanosheet arrays toward an acetone gas sensor. <i>Sensors and Actuators B: Chemical</i> , 2017, 238, 1052-1059.	4.0	98
78	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
79	Triggering interface potential barrier: A controllable tuning mechanism for electrochemical detection. <i>Biosensors and Bioelectronics</i> , 2016, 85, 869-875.	5.3	22
80	A Water-Proof Triboelectric-Electromagnetic Hybrid Generator for Energy Harvesting in Harsh Environments. <i>Advanced Energy Materials</i> , 2016, 6, 1501593.	10.2	243
81	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
82	Harvesting Low-Frequency (<5 Hz) Irregular Mechanical Energy: A Possible Killer Application of Triboelectric Nanogenerator. <i>ACS Nano</i> , 2016, 10, 4797-4805.	7.3	606
83	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
84	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
85	All-in-One Shape-Adaptive Self-Charging Power Package for Wearable Electronics. <i>ACS Nano</i> , 2016, 10, 10580-10588.	7.3	290
86	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
87	Effective energy storage from a triboelectric nanogenerator. <i>Nature Communications</i> , 2016, 7, 10987.	5.8	407
88	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
89	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
90	Triboelectrification-Enabled Self-Powered Detection and Removal of Heavy Metal Ions in Wastewater. <i>Advanced Materials</i> , 2016, 28, 2983-2991.	11.1	204

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91	Harvesting Broad Frequency Band Blue Energy by a Triboelectricâ€“Electromagnetic Hybrid Nanogenerator. ACS Nano, 2016, 10, 6526-6534.	7.3	244
92	High-efficiency ramie fiber degumming and self-powered degumming wastewater treatment using triboelectric nanogenerator. Nano Energy, 2016, 22, 548-557.	8.2	132
93	An Ultrarobust High-Performance Triboelectric Nanogenerator Based on Charge Replenishment. ACS Nano, 2015, 9, 5577-5584.	7.3	135
94	Networks of Triboelectric Nanogenerators for Harvesting Water Wave Energy: A Potential Approach toward Blue Energy. ACS Nano, 2015, 9, 3324-3331.	7.3	509
95	Blow-driven triboelectric nanogenerator as an active alcohol breath analyzer. Nano Energy, 2015, 16, 38-46.	8.2	255
96	Largely Improving the Robustness and Lifetime of Triboelectric Nanogenerators through Automatic Transition between Contact and Noncontact Working States. ACS Nano, 2015, 9, 7479-7487.	7.3	100
97	Gas sensors based on ultrathin porous Co <sub>3</sub> O <sub>4</sub> nanosheets to detect acetone at low temperature. RSC Advances, 2015, 5, 59976-59982.	1.7	96
98	Standards and figure-of-merits for quantifying the performance of triboelectric nanogenerators. Nature Communications, 2015, 6, 8376.	5.8	644
99	Automatic Mode Transition Enabled Robust Triboelectric Nanogenerators. ACS Nano, 2015, 9, 12334-12343.	7.3	111
100	Synthesis of TiO <sub>2</sub> decorated Co <sub>3</sub> O <sub>4</sub> acicular nanowire arrays and their application as an ethanol sensor. Journal of Materials Chemistry A, 2015, 3, 2794-2801.	5.2	73
101	Fabrication of gas sensor based on mesoporous rhombus-shaped ZnO rod arrays. Sensors and Actuators B: Chemical, 2015, 208, 112-121.	4.0	79
102	Honeycomb-like NiO/ZnO heterostructured nanorods: photochemical synthesis, characterization, and enhanced UV detection performance. Journal of Materials Chemistry C, 2014, 2, 4606.	2.7	106
103	Mesoporous Co <sub>3</sub> O <sub>4</sub> nanoneedle arrays for high-performance gas sensor. Sensors and Actuators B: Chemical, 2014, 203, 873-879.	4.0	73
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	Porous CoO Nanostructure Arrays Converted from Rhombic Co(OH)F and Needle-like Co(CO <sub>3</sub> ) <sub>0.5</sub> (OH)·0.11H <sub>2</sub> O and Their Electrochemical Properties. Journal of Physical Chemistry C, 2013, 117, 20465-20473.	1.5	89
106	Defects induced ferromagnetism in ZnO nanowire arrays doped with copper. CrystEngComm, 2013, 15, 7887.	1.3	31
107	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
108	Rhombus-shaped Co <sub>3</sub> O <sub>4</sub> nanorod arrays for high-performance gas sensor. Sensors and Actuators B: Chemical, 2013, 186, 172-179.	4.0	127

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109	A facile fluorine-mediated hydrothermal route to controlled synthesis of rhombus-shaped Co <sub>3</sub> O <sub>4</sub> nanorod arrays and their application in gas sensing. Journal of Materials Chemistry A, 2013, 1, 7511.	5.2	91
110	Iodine-ion-induced Size-tunable Co <sub>3</sub> O <sub>4</sub> Nanowires and the Size-dependent Catalytic Performance for CO Oxidation. ChemCatChem, 2013, 5, 3576-3581.	1.8	11