Wei-Shu Liu

List of Publications by Year
in descending order

123 papers	13,439 citations	28274 55 h-index	21540 114 g-index
124 all docs	124 docs citations	124 times ranked	7957 citing authors

#	Article	IF	Citations
1	High-performance nanostructured thermoelectric materials. NPG Asia Materials, 2010, 2, 152-158.	7.9	816
2	High thermoelectric performance by resonant dopant indium in nanostructured SnTe. Proceedings of the National Academy of Sciences of the United States of America, 2013, 110, 13261-13266.	7.1	632
3	Recent advances in thermoelectric nanocomposites. Nano Energy, 2012, 1, 42-56.	16.0	624
4	Experimental Studies on Anisotropic Thermoelectric Properties and Structures of n-Type Bi₂Te_{2.7}Se_{0.3}. Nano Letters, 2010, 10, 3373-3378.	9.1	608
5	Thermoelectric Property Studies on Cuâ€Doped nâ€type Cu_xBi₂Te_{2.7}Se_{0.3} Nanocomposites. Advanced Energy Materials, 2011, 1, 577-587.	19.5	535
6	Current progress and future challenges in thermoelectric power generation: From materials to devices. Acta Materialia, 2015, 87, 357-376.	7.9	447
7	Relationship between thermoelectric figure of merit and energy conversion efficiency. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 8205-8210.	7.1	415
8	Giant thermopower of ionic gelatin near room temperature. Science, 2020, 368, 1091-1098.	12.6	382
9	Enhancement of thermoelectric figure-of-merit by resonant states of aluminium doping in lead selenide. Energy and Environmental Science, 2012, 5, 5246-5251.	30.8	372
10	Thermoelectric and mechanical properties of nano-SiC-dispersed Bi2Te3 fabricated by mechanical alloying and spark plasma sintering. Journal of Alloys and Compounds, 2008, 455, 259-264.	5.5	366
11	Enhanced Thermoelectric Figure of Merit of p-Type Half-Heuslers. Nano Letters, 2011, 11, 556-560.	9.1	362
12	Heavy Doping and Band Engineering by Potassium to Improve the Thermoelectric Figure of Merit in p-Type PbTe, PbSe, and PbTe_{1â€“y}Se_y. Journal of the American Chemical Society, 2012, 134, 10031-10038.	13.7	337
13	New trends, strategies and opportunities in thermoelectric materials: A perspective. Materials Today Physics, 2017, 1, 50-60.	6.0	319
14	Enhancement in Thermoelectric Figureâ€ofâ€Merit of an Nâ€Type Halfâ€Heusler Compound by the Nanocomposite Approach. Advanced Energy Materials, 2011, 1, 643-647.	19.5	286
15	Thermoelectric properties of copper selenide with ordered selenium layer and disordered copper layer. Nano Energy, 2012, 1, 472-478.	16.0	271
16	Concentrating solar thermoelectric generators with a peak efficiency of 7.4%. Nature Energy, 2016, 1, .	39.5	269
17	Studies on the Bi₂Te₃â€“Bi₂Se₃â€“Bi₂S₃system for mid-temperature thermoelectric energy conversion. Energy and Environmental Science, 2013, 6, 552-560.	30.8	250
18	Stronger phonon scattering by larger differences in atomic mass and size in p-type half-Heuslers Hf1â^'xTixCoSb0.8Sn0.2. Energy and Environmental Science, 2012, 5, 7543.	30.8	244

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19	Enhanced catalytic performance by multi-field coupling in KNbO3 nanostructures: Piezo-photocatalytic and ferro-photoelectrochemical effects. Nano Energy, 2019, 58, 695-705.	16.0	240
20	Enhanced thermoelectric and mechanical properties in textured n-type Bi2Te3 prepared by spark plasma sintering. Solid State Sciences, 2008, 10, 651-658.	3.2	232
21	Wearable Thermoelectric Materials and Devices for Selfâ€Powered Electronic Systems. Advanced Materials, 2021, 33, e2102990.	21.0	221
22	Enhanced thermoelectric properties in CoSb3-xTex alloys prepared by mechanical alloying and spark plasma sintering. Journal of Applied Physics, 2007, 102, .	2.5	205
23	Effect of Hf Concentration on Thermoelectric Properties of Nanostructured Nâ€Type Halfâ€Heusler Materials Hf_xZr_{1â€“x}NiSn_{0.99}Sb_{0.01}. Advanced Energy Materials, 2013, 3, 1210-1214.	19.5	195
24	n-type thermoelectric material Mg ₂ Sn _{0.75} Ge _{0.25} for high power generation. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 3269-3274.	7.1	191
25	Few-layer transition metal dichalcogenides (MoS2, WS2, and WSe2) for water splitting and degradation of organic pollutants: Understanding the piezocatalytic effect. Nano Energy, 2019, 66, 104083.	16.0	181
26	Importance of high power factor in thermoelectric materials for power generation application: A perspective. Scripta Materialia, 2016, 111, 3-9.	5.2	169
27	Improvement of Thermoelectric Performance of CoSb_{3â^'x}Te_x Skutterudite Compounds by Additional Substitution of IVB-Group Elements for Sb. Chemistry of Materials, 2008, 20, 7526-7531.	6.7	147
28	Thermoelectric Property Study of Nanostructured pâ€Type Halfâ€Heuslers (Hf, Zr,) Tj ETQq0 0 0 rgBT /Overlock 10 Tf 50 382 Td (Ti)CoS	19.5	145
29	The bridge between the materials and devices of thermoelectric power generators. Energy and Environmental Science, 2017, 10, 69-85.	30.8	143
30	Understanding of the contact of nanostructured thermoelectric n-type Bi2Te2.7Se0.3 legs for power generation applications. Journal of Materials Chemistry A, 2013, 1, 13093.	10.3	133
31	Thermoelectric SnTe with Band Convergence, Dense Dislocations, and Interstitials through Sn Selfâ€Compensation and Mn Alloying. Small, 2018, 14, e1802615.	10.0	132
32	High-performance Ag0.8Pb18+xSbTe20 thermoelectric bulk materials fabricated by mechanical alloying and spark plasma sintering. Applied Physics Letters, 2006, 88, 092104.	3.3	130
33	Effect of mixed grain sizes on thermoelectric performance of Bi2Te3 compound. Journal of Applied Physics, 2009, 105, .	2.5	120
34	Effects of annealing on electrical properties of n-type Bi2Te3 fabricated by mechanical alloying and spark plasma sintering. Journal of Alloys and Compounds, 2009, 467, 91-97.	5.5	115
35	Thermoelectric interface materials: A perspective to the challenge of thermoelectric power generation module. Journal of Materiomics, 2019, 5, 321-336.	5.7	113
36	Study of the Thermoelectric Properties of Lead Selenide Doped with Boron, Gallium, Indium, or Thallium. Journal of the American Chemical Society, 2012, 134, 17731-17738.	13.7	105

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37	Thermoelectric properties of materials near the band crossing line in Mg2Snâ€“Mg2Geâ€“Mg2Si system. Acta Materialia, 2016, 103, 633-642.	7.9	104
38	Enhanced thermoelectric properties of bismuth sulfide polycrystals prepared by mechanical alloying and spark plasma sintering. Journal of Solid State Chemistry, 2008, 181, 3278-3282.	2.9	103
39	Mg₃₊_{Î´}Sb_xBi_{2â€“}_x Family: A Promising Substitute for the Stateâ€ofâ€theâ€Art nâ€Type Thermoelectric Materials near Room Temperature. Advanced Functional Materials, 2019, 29, 1807235.	14.9	98
40	Exclusive enhancement of catalytic activity in Bi_{0.5}Na_{0.5}TiO₃nanostructures: new insights into the design of efficient piezocatalysts and piezo-photocatalysts. Journal of Materials Chemistry A, 2020, 8, 16238-16245.	10.3	93
41	Enhanced thermoelectric performance of Bi2S3 by synergistical action of bromine substitution and copper nanoparticles. Nano Energy, 2015, 13, 554-562.	16.0	91
42	Effects of Sb compensation on microstructure, thermoelectric properties and point defect of CoSb3compound. Journal Physics D: Applied Physics, 2007, 40, 6784-6790.	2.8	89
43	Electrical and thermal properties of carbon nanotube bulk materials: Experimental studies for the<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:mn>328</mml:mn><mml:mo>â€“</mml:mo><mml:mn>958</mml:mn><mml:mspace width="0.3em" /><mml:mi mathvariant="normal">K</mml:mi></mml:mrow></mml:math>temperature range. Physical Review B, 2007, 75, .	3.8	88
44	Fast phase formation of double-filled p-type skutterudites by ball-milling and hot-pressing. Physical Chemistry Chemical Physics, 2013, 15, 6809.	2.8	85
45	New insight into the material parameter B to understand the enhanced thermoelectric performance of Mg₂Sn_{1â€“xâ€“y}Ge_xSb_y. Energy and Environmental Science, 2016, 9, 530-539.	30.8	83
46	High thermoelectric power factor in Cuâ€“Ni alloy originate from potential barrier scattering of twin boundaries. Nano Energy, 2015, 17, 279-289.	16.0	81
47	Inhibiting Grain Pulverization and Sulfur Dissolution of Bismuth Sulfide by Ionic Liquid Enhanced Poly(3,4-ethylenedioxythiophene):Poly(styrenesulfonate) for High-Performance Zinc-Ion Batteries. ACS Nano, 2019, 13, 7270-7280.	14.6	81
48	Thermoelectric property of fine-grained CoSb3skutterudite compound fabricated by mechanical alloying and spark plasma sintering. Journal Physics D: Applied Physics, 2007, 40, 566-572.	2.8	74
49	Studies on mechanical properties of thermoelectric materials by nanoindentation. Physica Status Solidi (A) Applications and Materials Science, 2015, 212, 2191-2195.	1.8	69
50	High thermoelectric performance in n-type BiAgSeS due to intrinsically low thermal conductivity. Energy and Environmental Science, 2013, 6, 1750.	30.8	68
51	Achieving band convergence by tuning the bonding ionicity in nâ€type Mg₃Sb₂. Journal of Computational Chemistry, 2019, 40, 1693-1700.	3.3	68
52	Effect of Silicon and Sodium on Thermoelectric Properties of Thallium-Doped Lead Telluride-Based Materials. Nano Letters, 2012, 12, 2324-2330.	9.1	64
53	Bi2S3 nanonetwork as precursor for improved thermoelectric performance. Nano Energy, 2014, 4, 113-122.	16.0	64
54	Synergistic enhancement of thermoelectric and mechanical performances of ionic liquid LiTFSI modulated PEDOT flexible films. Journal of Materials Chemistry C, 2019, 7, 4374-4381.	5.5	63

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55	Anomalous transport and thermoelectric performances of CuAgSe compounds. Solid State Ionics, 2014, 261, 21-25.	2.7	60
56	Suppression of grain growth by additive in nanostructured p-type bismuth antimony tellurides. Nano Energy, 2012, 1, 183-189.	16.0	57
57	Leafâ€inspired Flexible Thermoelectric Generators with High Temperature Difference Utilization Ratio and Output Power in Ambient Air. Advanced Science, 2021, 8, 2004947.	11.2	55
58	Enhanced Thermoelectric and Mechanical Properties in Yb_{0.3}Co₄Sb₁₂ with In Situ Formed CoSi Nanoprecipitates. Advanced Energy Materials, 2019, 9, 1902435.	19.5	53
59	Few-layer bismuth selenide cathode for low-temperature quasi-solid-state aqueous zinc metal batteries. Nature Communications, 2022, 13, 752.	12.8	49
60	Enhanced Piezocatalytic Activity of Sr_{0.5}Ba_{0.5}Nb₂O₆ Nanostructures by Engineering Surface Oxygen Vacancies and Self-Generated Heterojunctions. ACS Applied Materials & Interfaces, 2021, 13, 7259-7267.	8.0	45
61	Effect of aluminum on the thermoelectric properties of nanostructured PbTe. Nanotechnology, 2013, 24, 345705.	2.6	44
62	Comparative studies on thermoelectric properties of p-type Mg2Sn0.75Ge0.25 doped with lithium, sodium, and gallium. Acta Materialia, 2017, 141, 154-162.	7.9	40
63	Ionic thermoelectric materials for near ambient temperature energy harvesting. Applied Physics Letters, 2021, 118, .	3.3	40
64	3D Hierarchical Electrodes Boosting Ultrahigh Power Output for Gelatinâ€KClâ€FeCN^{4â^'/3â^'} Ionic Thermoelectric Cells. Advanced Energy Materials, 2022, 12, .	19.5	40
65	Effects of process parameters on electrical properties of n-type Bi2Te3 prepared by mechanical alloying and spark plasma sintering. Physica B: Condensed Matter, 2007, 400, 11-15.	2.7	38
66	Experimental determination of the Lorenz number in Cu<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:msub><mml:mrow /><mml:mrow><mml:mn>0.01</mml:mn></mml:mrow></mml:msub></mml:math>Bi<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:msub><mml:mrow /><mml:mn>2</mml:mn></mml:msub></mml:math>Te<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:msub><mml:mrow /><mml:	3.2	38
67	Dynamic piezo-thermoelectric generator for simultaneously harvesting mechanical and thermal energies. Nano Energy, 2020, 69, 104397.	16.0	38
68	The effect of secondary phase on thermoelectric properties of Zn4Sb3 compound. Nano Energy, 2013, 2, 1172-1178.	16.0	35
69	Room-temperature thermoelectric materials: Challenges and a new paradigm. Journal of Materiomics, 2022, 8, 427-436.	5.7	34
70	Enhanced thermoelectric property originating from additional carrier pocket in skutterudite compounds. Applied Physics Letters, 2008, 93, .	3.3	31
71	A general design strategy for thermoelectric interface materials in n-type Mg3Sb1.5Bi0.5 single leg used in TEGs. Acta Materialia, 2022, 226, 117616.	7.9	31
72	Thermoelectric performance enhancement of Mg₂Sn based solid solutions by band convergence and phonon scattering via Pb and Si/Ge substitution for Sn. Physical Chemistry Chemical Physics, 2016, 18, 20726-20737.	2.8	30

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73	Self-compensation induced vacancies for significant phonon scattering in InSb. Nano Energy, 2018, 48, 189-196.	16.0	30
74	System efficiency and power: the bridge between the device and system of a thermoelectric power generator. Energy and Environmental Science, 2020, 13, 3514-3526.	30.8	30
75	Ion regulation in double-network hydrogel module with ultrahigh thermopower for low-grade heat harvesting. Nano Energy, 2022, 92, 106738.	16.0	30
76	Efficiency and output power of thermoelectric module by taking into account corrected Joule and Thomson heat. Journal of Applied Physics, 2015, 118, .	2.5	29
77	The Electronic Transport Channel Protection and Tuning in Real Space to Boost the Thermoelectric Performance of Mg _{3+ Î´} Sb _{2- y} Bi _y near Room Temperature. Research, 2020, 2020, 1672051.	5.7	29
78	Large Transverse and Longitudinal Magnetoâ€Thermoelectric Effect in Polycrystalline Nodalâ€Line Semimetal Mg₃Bi₂. Advanced Materials, 2022, 34, e2200931.	21.0	28
79	Effect of triple fillers in thermoelectric performance of p-type skutterudites. Journal of Alloys and Compounds, 2015, 623, 104-108.	5.5	26
80	Transport and mechanical properties of the double-filled p-type skutterudites La0.68Ce0.22Fe4â^'xCoxSb12. Acta Materialia, 2016, 117, 13-22.	7.9	26
81	Luffa sponge-derived hierarchical meso/macroporous boron nitride fibers as superior sorbents for heavy metal sequestration. Journal of Hazardous Materials, 2019, 378, 120669.	12.4	26
82	Engineering Thermal Conductivity for Balancing Between Reliability and Performance of Bulk Thermoelectric Generators. Advanced Functional Materials, 2016, 26, 3678-3686.	14.9	25
83	Self-templated microwave-assisted hydrothermal synthesis of two-dimensional holey hydroxyapatite nanosheets for efficient heavy metal removal. Environmental Science and Pollution Research, 2019, 26, 30076-30086.	5.3	25
84	High-performance, flexible thermoelectric generator based on bulk materials. Cell Reports Physical Science, 2022, 3, 100780.	5.6	24
85	Transmission electron microscopy study of Pb-depleted disks in PbTe-based alloys. Journal of Materials Research, 2011, 26, 912-916.	2.6	23
86	Carrier distribution in multi-band materials and its effect on thermoelectric properties. Journal of Materiomics, 2016, 2, 203-211.	5.7	23
87	High thermoelectric performance of single phase p-type cerium-filled skutterudites by dislocation engineering. Journal of Materials Chemistry A, 2018, 6, 20128-20137.	10.3	22
88	Thermodynamic criterions of the thermoelectric performance enhancement in Mg2Sn through the self-compensation vacancy. Materials Today Physics, 2021, 16, 100327.	6.0	22
89	Homo-composition and hetero-structure nanocomposite Pnma Bi2SeS2 - Pnnm Bi2SeS2 with high thermoelectric performance. Nature Communications, 2021, 12, 7192.	12.8	22
90	The effect of charge carrier and doping site on thermoelectric properties of Mg2Sn0.75Ge0.25. Acta Materialia, 2017, 124, 528-535.	7.9	21

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91	Enhanced thermoelectric performances of flexible PEDOT:PSS film by synergistically tuning the ordering structure and oxidation state. Journal of Materiomics, 2020, 6, 119-127.	5.7	21
92	High thermoelectric properties achieved in environmentally friendly sulfide compound Bi2SeS2 by nanoenginnering. Nano Energy, 2021, 88, 106273.	16.0	21
93	Vacancy Modulating Co₃Sn₂S₂ Topological Semimetal for Aqueous Zincâ€Ion Batteries. Angewandte Chemie - International Edition, 2022, 61, e202111826.	13.8	21
94	Nanostructured Thermoelectric Materials. Springer Series in Materials Science, 2013, , 255-285.	0.6	17
95	Low temperature thermoelectric properties of p-type copper selenide with Ni, Te and Zn dopants. Journal of Alloys and Compounds, 2017, 699, 718-721.	5.5	17
96	Transport properties of Ni, Co, Fe, Mn doped Cu0.01Bi2Te2.7Se0.3 for thermoelectric device applications. Journal of Applied Physics, 2012, 112, .	2.5	16
97	The complexity of thermoelectric materials: why we need powerful and brilliant synchrotron radiation sources?. Materials Today Physics, 2018, 6, 68-82.	6.0	15
98	Fiber-Based Thermoelectric Materials and Devices for Wearable Electronics. Micromachines, 2021, 12, 869.	2.9	13
99	Epitaxial growth and thermoelectric properties of Mg3Bi2 thin films deposited by magnetron sputtering. Applied Physics Letters, 2022, 120, .	3.3	13
100	The enhancement of thermoelectric performance of p-type Li doped Mg2Ge0.4Sn0.6 by Si addition. Scripta Materialia, 2019, 166, 122-127.	5.2	12
101	Machine learning assisted discovering of new M2X3-type thermoelectric materials. Rare Metals, 2022, 41, 1543-1553.	7.1	12
102	Solidâ€State Janus Nanoprecipitation Enables Amorphousâ€Like Heat Conduction in Crystalline Mg₃Sb₂â€Based Thermoelectric Materials. Advanced Science, 2022, 9, .	11.2	12
103	Maximized atomic disordering approach boost the thermoelectric performance of Mg2Sn through the self-compensation effect and steric effect. Acta Materialia, 2021, 217, 117172.	7.9	11
104	Enhanced Thermoelectric Performance by Strong Phonon Scattering at the Heterogeneous Interfaces of the Mg₂Sn/Mg₃Sb₂ High-Content Nanocomposite. ACS Applied Materials & Interfaces, 2021, 13, 56164-56170.	8.0	11
105	Anion Size Effect of Ionic Liquids in Tuning the Thermoelectric and Mechanical Properties of PEDOT:PSS Films through a Counterion Exchange Strategy. ACS Applied Materials & Interfaces, 2022, 14, 27911-27921.	8.0	11
106	Stable bismuth-antimony alloy cathode with a conversion-dissolution/deposition mechanism for high-performance zinc batteries. Materials Today, 2021, 51, 87-95.	14.2	10
107	Vacancy Modulating Co₃Sn₂S₂ Topological Semimetal for Aqueous Zincâ€Ion Batteries. Angewandte Chemie, 2022, 134, .	2.0	9
108	Substitution of Antimony by Tin and Tellurium in n-Type Skutterudites CoSb2.8Sn x Te0.2â^'x. Jom, 2014, 66, 2282-2287.	1.9	7

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109	Compositional engineering of metal-xanthate precursors toward (Bi_{1â˜’x}Sb_x)₂S₃ (0 â‰¤ x â‰¤ 0.05) films with enhanced room temperature thermoelectric performance. Journal of Materials Chemistry C, 2022, 10, 1718-1726.	5.5	6
110	A general <scp>Whiteâ€“Box</scp> strategy for designing thermoelectric cooling system. InformaÄnÃ-MateriÃ¡ly, 2022, 4, .	17.3	6
111	Disordered stoichiometric nanorods and ordered off-stoichiometric nanoparticles in n-type thermoelectric Bi2Te2.7Se0.3. Journal of Applied Physics, 2012, 112, 093518.	2.5	5
112	Anomalous CDW ground state in Cu2Se: A wave-like fluctuation of the dc I-V curve near 50ÂK. Journal of Materiomics, 2017, 3, 150-157.	5.7	5
113	Synergetic tuning of electrical/thermal transport via dualâ€doping in Bi_{0.96â˜’x}<scp>M</scp>_xPb_{0.06}CuSeO. Journal of the American Ceramic Society, 2019, 102, 1541-1547.	3.8	5
114	Thermoelectric properties of p-type polycrystalline Bi0.8Sb0.8In0.4Se3. Applied Physics Letters, 2021, 118, .	3.3	5
115	Thermal stability of thermoelectric materials viain situresistivity measurements. Review of Scientific Instruments, 2012, 83, 115114.	1.3	4
116	Topological effect of surface plasmon excitation in gapped isotropic topological insulator nanowires. Canadian Journal of Physics, 2015, 93, 591-598.	1.1	4
117	Bistructural Pseudocontinuous Solid Solution with Hierarchical Microstructures from Ab initio Study: Application to the Mg2Snâ˜’Mg3Sb2 System. Acta Materialia, 2022, 236, 118139.	7.9	3
118	Thermoelectric energy conversion using nanostructured materials. , 2011, , .		2
119	Thermoelectrics: Mg₃₊_{Î´}Sb_xBi_{2â˜’}_x Family: A Promising Substitute for the Stateâ€ofâ€theâ€Art nâ€Type Thermoelectric Materials near Room Temperature (Adv. Funct. Mater. 4/2019). Advanced Functional Materials, 2019, 29, 1970020.	14.9	2
120	Thermodynamic activity of solute in multicomponent alloy from first-principles: Excess Mg in Mg3(Sb1-Bi)2 as an example. Calphad: Computer Coupling of Phase Diagrams and Thermochemistry, 2021, 74, 102318.	1.6	2
121	Contact for Bi2Te3-Based Thermoelectric Leg. , 2017, , 605-624.		2
122	Impact of Tertiary Treatment Processes on the Effectiveness of Chloramination for Biological Growth Control in Recirculating Cooling Systems Using Treated Municipal Wastewater. Journal of Environmental Engineering, ASCE, 2014, 140, 04013003.	1.4	1
123	Module-level design and characterization of thermoelectric power generator. Chinese Physics B, 2022, 31, 048502.	1.4	1