

# 2021 Publication List

In 2021 ISEM published 323 papers including two in Science, one in Nature Materials, three in other Nature Group journals, nineteen in Small, sixteen in Advanced Functional Materials, ten in Advanced Energy Materials, ten in Energy and Environmental Science, and six in Angewandte Chemie International Edition.

1. G. Wang, F. Yu, Y. Zhang, Y. Zhang, M. Zhu, G. Xu, M. Wu, H. Liu, S. Dou, and C. Wu, *2D Sn/C Freestanding Frameworks as a Robust Nucleation Layer for Highly Stable Sodium Metal Anodes with a High Utilization*, **NANO ENERGY** **79**, (2021).
2. C. Jiang, X. Liu, F. Yu, S. Zhang, H. Fang, X. Cheng, and X. Zhao, *High-Temperature Vibration Sensor Based on Ba<sub>2</sub>TiSi<sub>2</sub>O<sub>8</sub> Piezoelectric Crystal With Ultra-Stable Sensing Performance up to 650 Degrees C*, **IEEE Trans. Ind. Electron.** **68**, 12850 (2021).
3. J. Ding, H. Zheng, H. Gao, Q. Liu, Z. Hu, L. Han, S. Wang, S. Wu, S. Fang, and S. Chou, *In Situ Lattice Tunnel Distortion of Vanadium Trioxide for Enhancing Zinc Ion Storage*, **Adv. ENERGY Mater.** **11**, (2021).
4. X. Gu et al., *A CoSe-C@C Core-Shell Structure with Stable Potassium Storage Performance Realized by an Effective Solid Electrolyte Interphase Layer*, **J. Mater. Chem. A** **9**, 11397 (2021).
5. C. S. Fang, J. L. Wang, W. D. Hutchison, W. Q. Wang, A. J. Studer, Q. F. Gu, and J. Zhao, *Controllable Isotropic Thermal Expansion in Series of Designed Magnetocaloric Materials HoCo<sub>2</sub>Mnx (X=0-1.0)*, **J. ALLOYS Compd.** **863**, (2021).
6. A. Kumar, J. N. Baker, P. C. Bowes, M. J. Cabral, S. Zhang, E. C. Dickey, D. L. Irving, and J. M. LeBeau, *Atomic-Resolution Electron Microscopy of Nanoscale Local Structure in Lead-Based Relaxor Ferroelectrics*, **Nat. Mater.** **20**, 62 (2021).
7. C. Chen et al., *Optimization of Ferroelectric Ordering and Thermal Stability in Na<sub>1/2</sub>Bi<sub>1/2</sub>TiO<sub>3</sub> -Based Lead-Free Single Crystal through Defect Engineering*, **ACS Appl. Mater. INTERFACES** **13**, 60995 (2021).
8. X. Ma, Z. Zhang, J. Wang, S. Sun, S. Zhang, S. Yuan, Z. Qiao, Z. Yu, J. Kang, and W. Li, *Tuning Dual Three-Dimensional Porous Copper/Graphite Composite to Achieve Diversified Utilization of Copper Current Collector for Lithium Storage (Vol , Pg , )*, **RARE Met.** (n.d.).
9. G. Dong, H. Fan, L. Liu, P. Ren, Z. Cheng, and S. Zhang, *Large Electrostrain in Bi<sub>1/2</sub>Na<sub>1/2</sub>TiO<sub>3</sub>-Based Relaxor Ferroelectrics: A Case Study of Bi<sub>1/2</sub>Na<sub>1/2</sub>TiO<sub>3</sub>-Bi<sub>1/2</sub>K<sub>1/2</sub>TiO<sub>3</sub>-Bi(Ni<sub>2/3</sub>Nb<sub>1/3</sub>)O<sub>3</sub> Ceramics*, **J. MATERIOMICS** **7**, 593 (2021).
10. L. Liu et al., *A P3-Type K<sub>1/2</sub>Mn<sub>5/6</sub>Mg<sub>1/12</sub>Ni<sub>1/12</sub>O<sub>2</sub> Cathode Material for Potassium-Ion Batteries with High Structural Reversibility Secured by the Mg-Ni Pinning Effect*, **ACS Appl. Mater. INTERFACES** **13**, 28369 (2021).
11. X. Kong, L. Yang, Z. Cheng, and S. Zhang, *Enhanced Energy-Storage Properties and Good Temperature Stability in 0.92(Sr<sub>0.7</sub>Bi<sub>0.2</sub>)TiO<sub>3</sub>-0.08Bi(Mg<sub>0.5</sub>Hf<sub>0.5</sub>)O<sub>3</sub> Relaxor Ferroelectric Ceramic*, **Adv. ENERGY Sustain. Res.** **2**, (2021).
12. W. Wang, J. Qian, C. Geng, M. Fan, C. Yang, L. Lu, and Z. Cheng, *Flexible Lead-Free Ba<sub>0.5</sub>Sr<sub>0.5</sub>TiO<sub>3</sub>/0.4BiFeO<sub>3</sub>-0.6SrTiO<sub>3</sub> Dielectric Film Capacitor with High Energy Storage Performance*, **NANOMATERIALS** **11**, (2021).
13. G. Liang et al., *Crystallographic-Site-Specific Structural Engineering Enables Extraordinary Electrochemical Performance of High-Voltage LiNi<sub>0.5</sub>Mn<sub>1.5</sub>O<sub>4</sub> Spinel Cathodes for Lithium-Ion Batteries*, **Adv. Mater.** **33**, (2021).
14. L. Jiang et al., *Ultrahigh Piezoelectric Coefficients of Li-Doped (K,Na)NbO<sub>3</sub> Nanorod Arrays with Manipulated O-T Phase Boundary: Towards Energy Harvesting and Self-Powered Human Movement Monitoring*, **NANO ENERGY** **86**, (2021).
15. C. Sun, X. Guo, C. Hu, L. Liu, L. Fang, Z. Cheng, and N. Luo, *Tribocatalytic Degradation of Dyes by Tungsten Bronze Ferroelectric Ba<sub>2.5</sub>Sr<sub>2.5</sub>Nb<sub>8</sub>Ta<sub>2</sub>O<sub>30</sub> Submicron Particles*, **RSC Adv.** **11**, 13386 (2021).
16. D. Yang et al., *NbSe<sub>2</sub> Meets C<sub>2</sub>N: A 2D-2D Heterostructure Catalysts as Multifunctional Polysulfide Mediator in Ultra-Long-Life Lithium-Sulfur Batteries*, **Adv. ENERGY Mater.** **11**, (2021).
17. W. Wang, X. Wang, W. Hutchison, Z. Cheng, S. Campbell, and J. Wang, *R<sub>3</sub>(Fe,T)<sub>29</sub> Intermetallic Compounds- Magnetoelastic Coupling in Sm<sub>3</sub>(Co<sub>x</sub>Fe<sub>1-x</sub>)<sub>29</sub>-YCr<sub>3</sub>*, **J. Magn. Magn. Mater.** **533**, (2021).
18. X. Zeng et al., *Bio-Inspired Design of an in Situ Multifunctional Polymeric Solid-Electrolyte Interphase for Zn Metal Anode Cycling at 30 MA Cm<sup>-2</sup> and 30 MA h Cm<sup>-2</sup>*, **ENERGY Environ. Sci.** **14**, 5947 (2021).
19. Y. Han, Z. Sang, D. Liu, T. Zhang, J. Feng, W. Si, S. Dou, J. Liang, and F. Hou, *Lithiophilic and Conductive V<sub>2</sub>O<sub>3</sub>/VN Nanosheets as Regulating Layer for High-Rate, High-Areal Capacity and Dendrite-Free Lithium Metal Anodes*, **Chem. Eng. J.** **420**, (2021).
20. Y. Chen, K. Zou, X. Dai, H. Bai, S. Zhang, T. Zhou, C. Li, Y. Liu, W. Pang, and Z. Guo, *Polysulfide Filter and Dendrite Inhibitor: Highly Graphitized Wood Framework Inhibits Polysulfide Shuttle and Lithium Dendrites in Li-S Batteries*, **Adv. Funct. Mater.** **31**, (2021).
21. X. He et al., *Y Soft-Carbon-Coated, Free-Standing, Low-Defect, Hard-Carbon Anode To Achieve a 94% Initial Coulombic Efficiency for Sodium-Ion Batteries*, **ACS Appl. Mater. INTERFACES** **13**, 44358 (2021).

22. G. Dong, H. Fan, Y. Jia, M. Li, and S. Zhang, *Electro-Mechano-Optical Properties of the Er<sup>3+</sup> Modified Bi<sub>0.5</sub>Na<sub>0.4</sub>K<sub>0.1</sub>TiO<sub>3</sub> Versatile Ceramics*, *J. Eur. Ceram. Soc.* **41**, 2488 (2021).
23. L. Liang, J. Li, M. Zhu, Y. Li, S. Chou, and W. Li, *Cobalt Chalcogenides/Cobalt Phosphides/Cobaltates with Hierarchical Nanostructures for Anode Materials of Lithium-Ion Batteries: Improving the Lithiation Environment*, *SMALL* **17**, (2021).
24. W. Gao et al., *Vacancy-Defect Modulated Pathway of Photoreduction of CO<sub>2</sub> on Single Atomically Thin AgInP<sub>2</sub>S<sub>6</sub> Sheets into Olefiant Gas*, *Nat. Commun.* **12**, (2021).
25. P. Yu et al., *Template-Free Self-Caging Nanochemistry for Large-Scale Synthesis of Sulfonated-Graphene@Sulfur Nanocage for Long-Life Lithium-Sulfur Batteries*, *Adv. Funct. Mater.* **31**, (2021).
26. Y. Liu et al., *Sulfonic-Group-Grafted Ti<sub>3</sub>C<sub>2</sub>T<sub>x</sub> MXene: A Silver Bullet to Settle the Instability of Polyaniline toward High-Performance Zn-Ion Batteries*, *ACS NANO* **15**, 9065 (2021).
27. Y. Sun, X. Li, A. Vijayakumar, H. Liu, C. Wang, S. Zhang, Z. Fu, Y. Lu, and Z. Cheng, *Hydrogen Generation and Degradation of Organic Dyes by New Piezocatalytic 0.7BiFeO<sub>3</sub>-0.3BaTiO<sub>3</sub> Nanoparticles with Proper Band Alignment*, *ACS Appl. Mater. INTERFACES* **13**, 11050 (2021).
28. W. Guo, W. Si, T. Zhang, Y. Han, L. Wang, Z. Zhou, P. Lu, F. Hou, and J. Liang, *Ultrathin Ni<sub>x</sub>Co<sub>y</sub>-Silicate Nanosheets Natively Anchored on CNTs Films for Flexible Lithium Ion Batteries*, *J. ENERGY Chem.* **54**, 746 (2021).
29. W. Zhao et al., *Massive Dirac Fermions and Strong Shubnikov-de Haas Oscillations in Single Crystals of the Topological Insulator Bi<sub>2</sub>Se<sub>3</sub> Doped with Sm and Fe*, *Phys. Rev. B* **104**, (2021).
30. S. Liu, J. Mao, L. Zhang, W. Pang, A. Du, and Z. Guo, *Manipulating the Solvation Structure of Nonflammable Electrolyte and Interface to Enable Unprecedented Stability of Graphite Anodes beyond 2 Years for Safe Potassium-Ion Batteries*, *Adv. Mater.* **33**, (2021).
31. R. Hossain, A. Ahmed, R. Yun, L. Sang, S. Islam, G. Yang, M. Cortie, and X. Wang, *Significant Enhancement of Electrical Conductivity by Incorporating Carbon Fiber into CoSb<sub>3</sub> Thermoelectric Skutterudite Fabricated by Spark Plasma Sintering Method*, *J. Mater. Sci.* **56**, 20138 (2021).
32. D. Yuan et al., *Cation-Vacancy Induced Li<sup>+</sup> Intercalation Pseudocapacitance at Atomically Thin Heterointerface for High Capacity and High Power Lithium-Ion Batteries*, *J. ENERGY Chem.* **62**, 281 (2021).
33. F. Gebert, D. Cortie, J. Bouwer, W. Wang, Z. Yan, S. Dou, and S. Chou, *Epitaxial Nickel Ferrocyanide Stabilizes Jahn-Teller Distortions of Manganese Ferrocyanide for Sodium-Ion Batteries*, *Angew. Chem.-Int. Ed.* **60**, 18519 (2021).
34. P. Yan, Y. Qin, Z. Xu, F. Han, Y. Wang, Z. Wen, Y. Zhang, and S. Zhang, *Highly Transparent Eu-Doped 0.72PMN-0.28PT Ceramics with Excellent Piezoelectricity*, *ACS Appl. Mater. INTERFACES* **13**, 54210 (2021).
35. Q. Fan, J. Jiang, S. Zhang, T. Zhou, W. Pang, Q. Gu, H. Liu, Z. Guo, and J. Wang, *Accelerated Polysulfide Redox in Binder-Free Li<sub>2</sub>S Cathodes Promises High-Energy-Density Lithium-Sulfur Batteries*, *Adv. ENERGY Mater.* **11**, (2021).
36. F. Zhou, Y. Liu, M. Kuang, P. Wang, J. Wang, T. Yang, X. Wang, Z. Cheng, and G. Zhang, *Time-Reversal-Breaking Weyl Nodal Lines in Two-Dimensional A<sub>3</sub>C<sub>2</sub> (A = Ti, Zr, and Hf) Intrinsically Ferromagnetic Materials with High Curie Temperature*, *NANOSCALE* **13**, 8235 (2021).
37. X. Zeng et al., *Electrolyte Design for In Situ Construction of Highly Zn<sup>2+</sup>-Conductive Solid Electrolyte Interphase to Enable High-Performance Aqueous Zn-Ion Batteries under Practical Conditions*, *Adv. Mater.* **33**, (2021).
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40. C. Qiu, Z. Xu, Z. An, J. Liu, G. Zhang, S. Zhang, L. Chen, N. Zhang, and F. Li, *In-Situ Domain Structure Characterization of Pb(Mg<sub>1/3</sub>Nb<sub>2/3</sub>)O<sub>3</sub>-PbTiO<sub>3</sub> Crystals under Alternating Current Electric Field Poling*, *ACTA Mater.* **210**, (2021).
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42. X. Li, L. Yuan, R. Liu, H. He, J. Hao, Y. Lu, Y. Wang, G. Liang, G. Yuan, and Z. Guo, *Engineering Textile Electrode and Bacterial Cellulose Nanofiber Reinforced Hydrogel Electrolyte to Enable High-Performance Flexible All-Solid-State Supercapacitors*, *Adv. ENERGY Mater.* **11**, (2021).
43. H. Luo et al., *Synergistic Nanostructure and Heterointerface Design Propelled Ultra-Efficient in-Situ Self-Transformation of Zinc-Ion Battery Cathodes with Favorable Kinetics*, *NANO ENERGY* **81**, (2021).

44. Y. Pan, J. Li, Z. Liu, R. Yang, Y. Liu, L. Yin, H. Liu, and X. Jian, *Inorganic/Organic Bilayer of Silica/Acrylic Polyurethane Decorating FeSiAl for Enhanced Anti-Corrosive Microwave Absorption*, **Appl. Surf. Sci.** **567**, (2021).
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46. W. Zhang et al., *Architecting Amorphous Vanadium Oxide/MXene Nanohybrid via Tunable Anodic Oxidation for High-Performance Sodium-Ion Batteries*, **Adv. ENERGY Mater.** **11**, (2021).
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49. S. Shkuratov, J. Baird, V. Antipov, C. Lynch, S. Zhang, J. Chase, and H. Jo, *Giant Power Density Produced by PIN-PMN-PT Ferroelectric Single Crystals Due to a Pressure Induced Polar-to-Nonpolar Phase Transformation*, **J. Mater. Chem. A** **9**, 12307 (2021).
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52. Z. Huang, Z. Li, M. Zhu, G. Wang, F. Yu, M. Wu, G. Xu, S. Dou, H. Liu, and C. Wu, *Highly Stable Lithium/Sodium Metal Batteries with High Utilization Enabled by a Holey Two-Dimensional N-Doped TiNb<sub>2</sub>O<sub>7</sub> Host*, **NANO Lett.** **21**, 10453 (2021).
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54. Z. Zheng, J. Jiang, H. Guo, C. Li, K. Konstantinov, Q. Gu, and J. Wang, *Tuning Na<sub>2</sub>O<sub>2</sub> Formation and Decomposition Routes with Nitrogen-Doped Nanofibers for Low Overpotential Na-O<sub>2</sub> Batteries*, **NANO ENERGY** **81**, (2021).
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56. X. Ma, Z. Zhang, J. Wang, S. Sun, S. Zhang, S. Yuan, Z. Qiao, Z. Yu, J. Kang, and W. Li, *Tuning Dual Three-Dimensional Porous Copper/Graphite Composite to Achieve Diversified Utilization of Copper Current Collector for Lithium Storage*, **RARE Met.** **40**, 2802 (2021).
57. Y. Zhang, M. Zhu, G. Wang, F. Du, F. Yu, K. Wu, M. Wu, S. Dou, H. Liu, and C. Wu, *Dendrites-Free Zn Metal Anodes Enabled by an Artificial Protective Layer Filled with 2D Anionic Nanosheets*, **SMALL METHODS** **5**, (2021).
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