

Journal of Materials Chemistry A

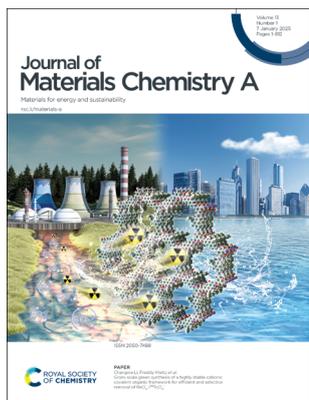
Materials for energy and sustainability

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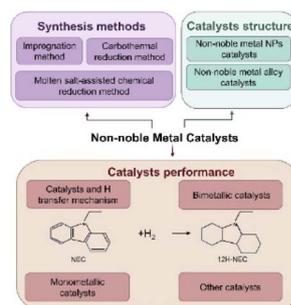
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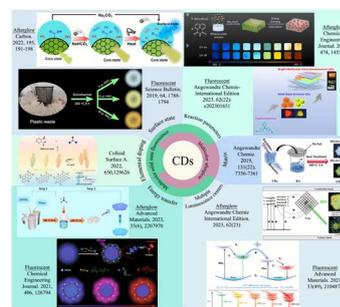
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Multicolor solid-state fluorescence and multicolor afterglow carbon dots: preparation, luminescence regulation, and applications

Qiang Fu,* Jianye Zhang, Kailin Zhang, Shouhong Sun and Zhanhua Dong



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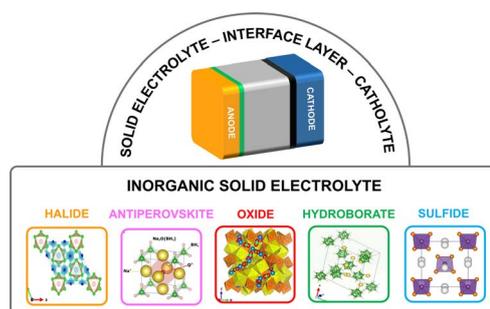
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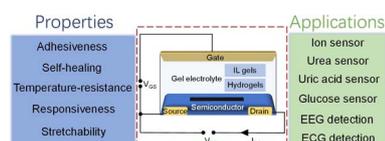
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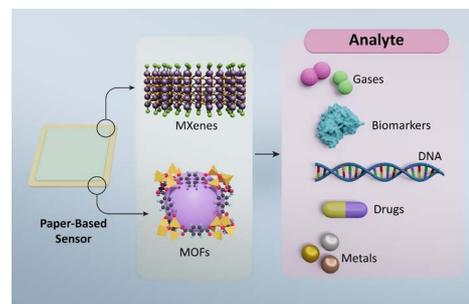
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Sepehr Larjani, Atefeh Zarepour, Arezoo Khosravi, Siavash Iravani,* Mahnaz Eskandari* and Ali Zarrabi*

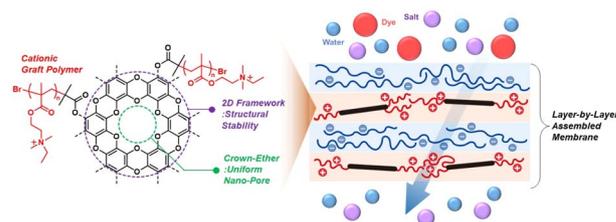


COMMUNICATIONS

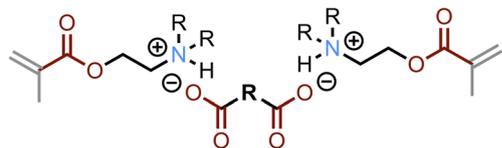
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Ordered crown-ether 2D framework based loose nanofiltration membranes for improved separation and stability

Jae Jun Kim, Huiran Seo, Jinseok Kim, Mun Hyeon Kim, Jinwook Park, Hyunkee Hong, Hee Joong Kim* and Jong-Chan Lee*



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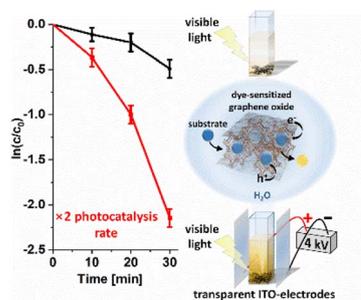
Liquid Resins from Solid Carboxylic Acids

- ✓ low viscosity
- ✓ fast methacrylate polymerization
- ✓ wide selection of acids
- ✓ dual-cure with epoxy

Solventless, rapid-polymerizable liquid resins from solid carboxylic acids through low-viscosity acid/base complexes

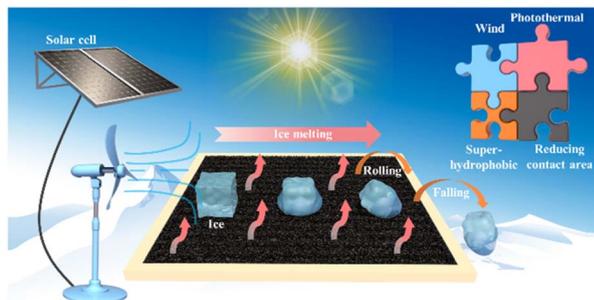
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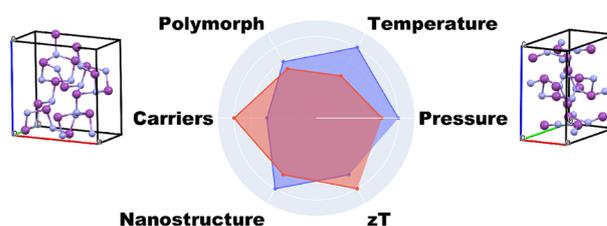
Changxia Li,* Justyna Florek, Patrick Guggenberger and Freddy Kleitz*



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Enhancing the thermoelectric figure of merit of BiN via polymorphism, pressure, and nanostructuring

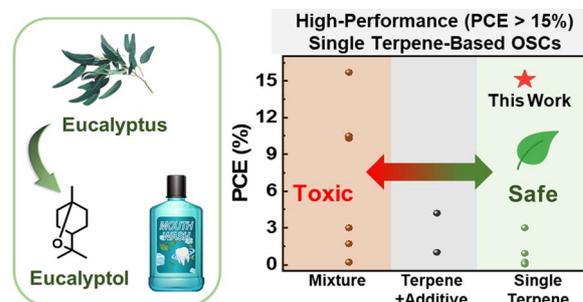
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High-performance, ambient-processable organic solar cells achieved by single terpene-based entirely eco-friendly process

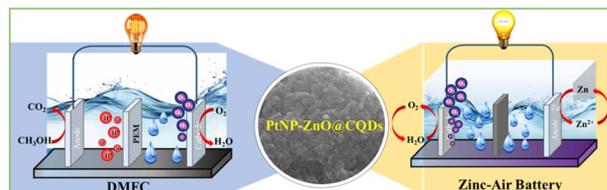
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Pt-nanoparticles on ZnO/carbon quantum dots: a trifunctional nanocomposite with superior electrocatalytic activity boosting direct methanol fuel cells and zinc-air batteries

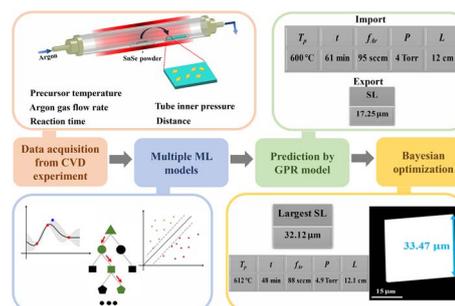
Anup Kumar Pradhan, Sayan Halder and Chanchal Chakraborty*



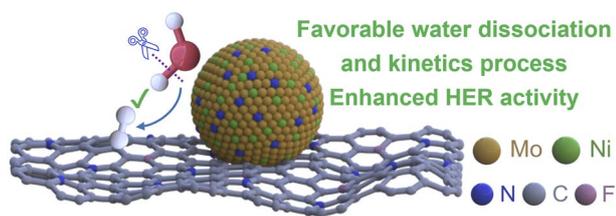
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Huijia Luo, Wenwu Pan, Junliang Liu, Han Wang, Songqing Zhang, Yongling Ren, Cailei Yuan and Wen Lei*



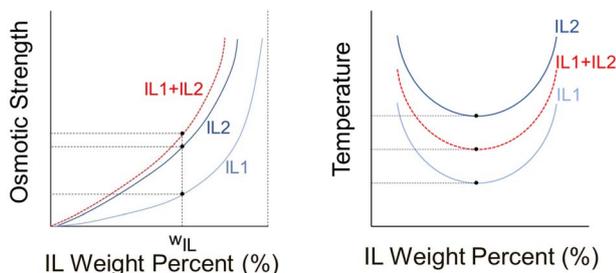
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Modulating the electronic interactions via heterostructure engineering for energy-saving hydrogen production at high current densities

Dongxing Tan,* Xianfang Yin, Jing Wang, Zixuan Zhang, Xiao Zhu, Hengrui Kang and Yuanyuan Feng*

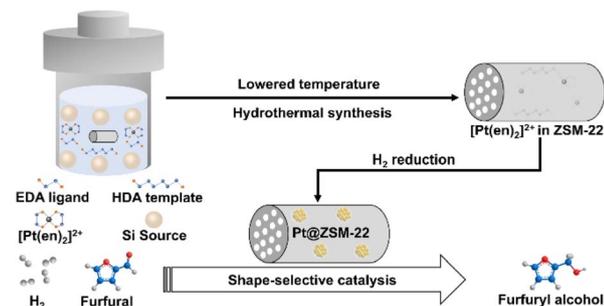
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Performance enhancement of aqueous ionic liquids with lower critical solution temperature (LCST) behavior through ternary mixtures

Ahmed Mahfouz, Andrew Z. Haddad, Jordan D. Kocher and Akanksha K. Menon*

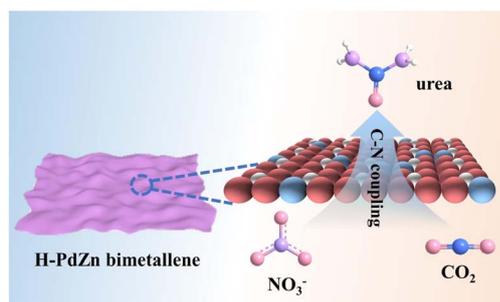
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Xuelin Wang, Congxin Wang,* Wentao Bi, Wei Qu and Zhijian Tian*

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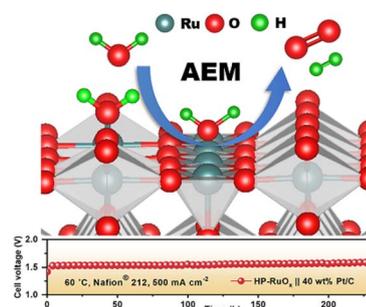
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Oxygen-defective ruthenium oxide as an efficient and durable electrocatalyst for acidic oxygen evolution reaction

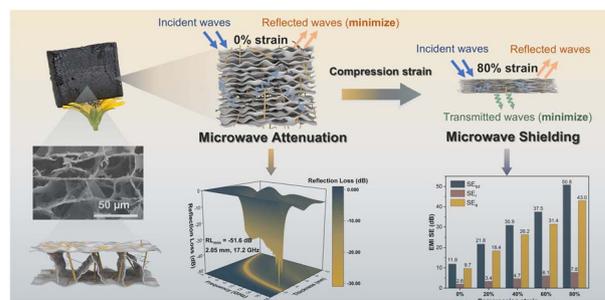
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Mechanical-dielectric optimized graphene aerogels with strain-tunable microwave attenuation and shielding functions

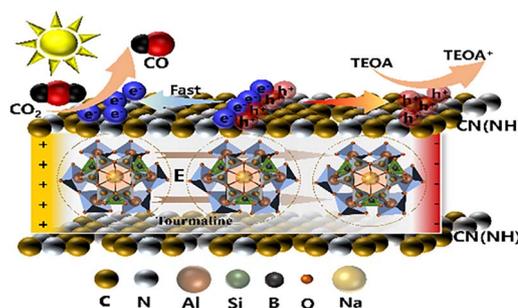
Yijing Zhao, Nasir Ahmad, Yong Yang* and Wei Zhai*



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Enhancing photoactivity of defective g-C₃N₄ via self-polarization effect of tourmaline for CO₂ reduction

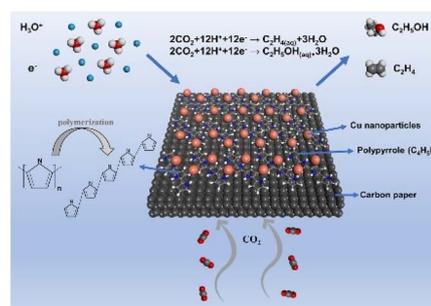
Jiangpeng Wang, Chao Huang, Deng Liu, Huihui Peng, Qiong Luo, Dimin Yang, Xuelian Yu* and Yingmo Hu*



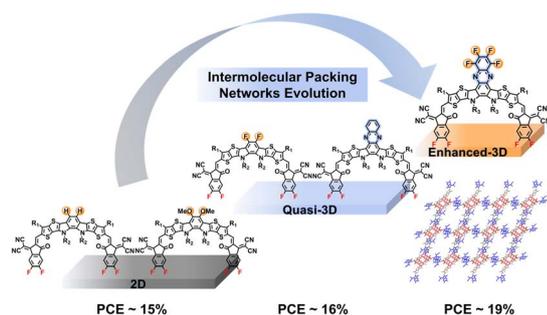
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A local proton-transport promoter for industrial CO₂ electroreduction to multicarbon products

Haiyi Guo, Qi Huang, Di Li, Shiyu Dai, Kang Yang, Sheng Chen, Wei Ma,* Qiang Li* and Jingjing Duan*



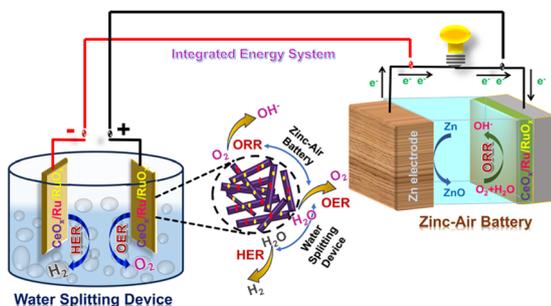
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Root-cause analyses for 3D intermolecular packing network formation in central unit extended small molecular acceptors

Jiaxin Guo, Xiangjian Cao, Zheng Xu, Tengfei He, Xingqi Bi, Zhaoyang Yao,* Yaxiao Guo, Guankui Long, Chenxi Li, Xiangjian Wan* and Yongsheng Chen*

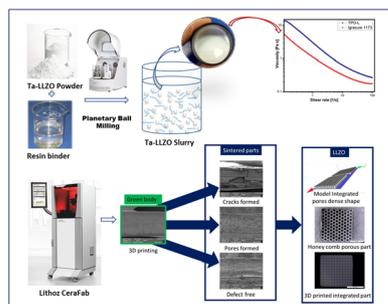
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Synergistic influence of multivalent $\text{Ru}^{\delta+}$ on a CeO_x nanocatalyst for self-powered efficient electrochemical water splitting

Papri Mondal and Sujoy Baitalik*

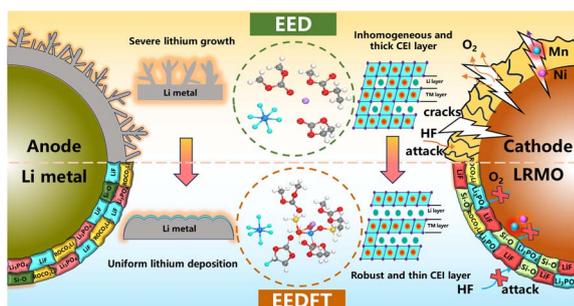
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Vat photopolymerization of tantalum-doped $\text{Li}_7\text{La}_3\text{Zr}_2\text{O}_{12}$ electrolytes: a new Frontier in solid-state battery design

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Synchronous dual additives to boost multiphase interface stability of high-voltage Li-rich Mn-based batteries

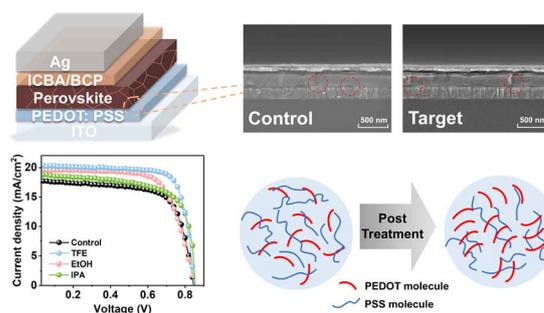
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Enhanced charge carrier extraction and transport with interface modification for efficient tin-based perovskite solar cells

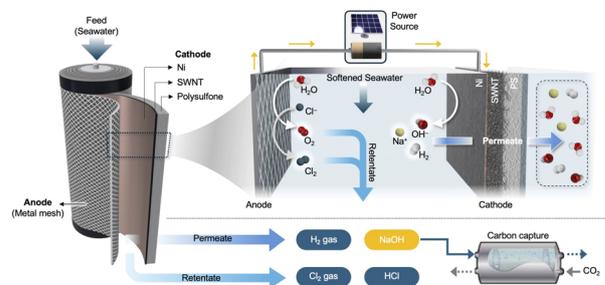
Zhenzhu Zhao, Mulin Sun, Fang Xiang, Xuefei Wu, Zachary Fink, Zongming Huang, Junyao Gao, Honghe Ding, Pengju Tan, Chengjian Yuan, Yuqian Yang, Nikita A. Emelianov, Lyubov A. Frolova, Zhengguo Xiao, Pavel A. Troshin, Thomas P. Russell, Junfa Zhu, Yu Li* and Qin Hu*



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Efficient caustic and hydrogen production using a pressurized flow-through cathode

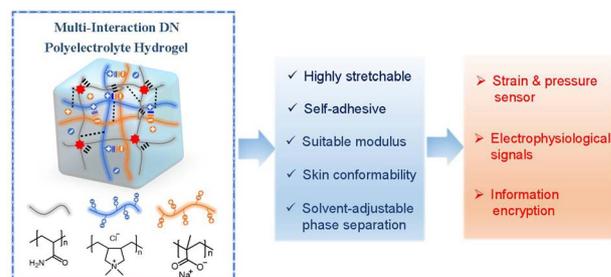
Fan Yang, Minhao Xiao, Sangsuk Lee, Javier Alan Quezada Renteria, Xinyi Wang, Minju Cha, Anya Dickinson-Cove, Sungsoo Kim, Guy Z. Ramon, Gaurav N. Sant, Eric M. V. Hoek and David Jassby*



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A multi-interaction conductive double-network polyelectrolyte hydrogel with high stretchability, self-adhesion, and tunable transparency for bioelectronic sensing and information encryption

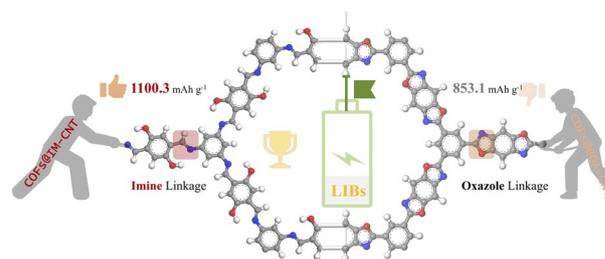
Dongdong Lu,* Zilong Zhu, Mingning Zhu, Peng Zhang and Xiaodong Xiang*



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Linkage engineering regulated π -conjugated covalent organic framework (COF)-based anodes for high-performance LIBs

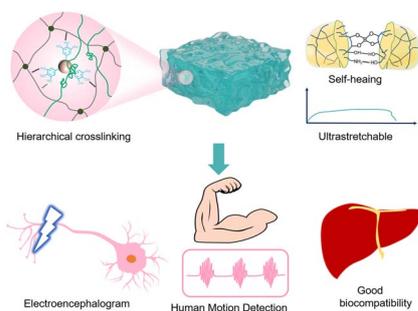
Changyu Weng, Hongmei Yuan, Jie Wang, Longlong Ma and Jianguo Liu*



Through linkage engineering to regulate COFs as anodes.



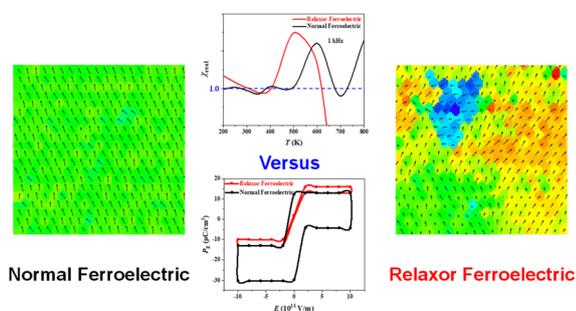
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Hierarchical hybrid crosslinking multifunctional gelatin-based hydrogel: ideal platforms for flexible wearable devices, brain–computer interfaces and biomedical applications

Chang Xu, Shiqiang Guan, Hao Zhang, Weiwang Fan, Xijing Zhuang* and Xufeng Dong*

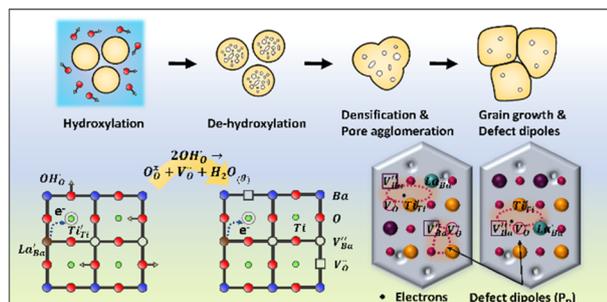
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Monte Carlo simulations of the temperature-dependent microstructure evolution of relaxor ferroelectric polymers

Tong Guan, Quan-Ao He and Shuang Chen*

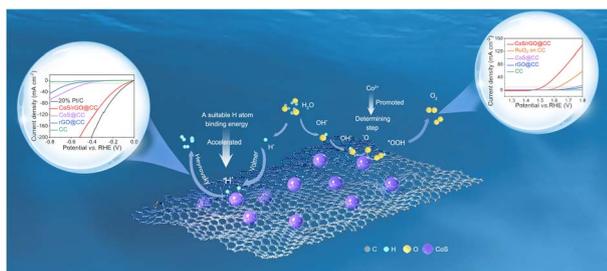
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Enhanced colossal permittivity in mono-doped BaTiO₃ via particle hydroxylation-induced defect dipoles

Seung Yong Lee, Jung Hwan Song, Jiseop Oh and Do Kyung Kim*

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Facile engineering of CoS/rGO heterostructures on carbon cloth for efficient all-pH hydrogen evolution reaction and alkaline water electrolysis

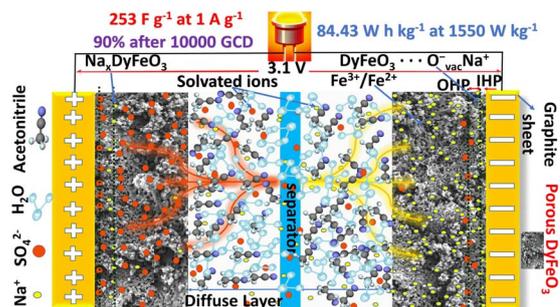
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High-voltage symmetric supercapacitors developed by engineering DyFeO₃ electrodes and aqueous electrolytes

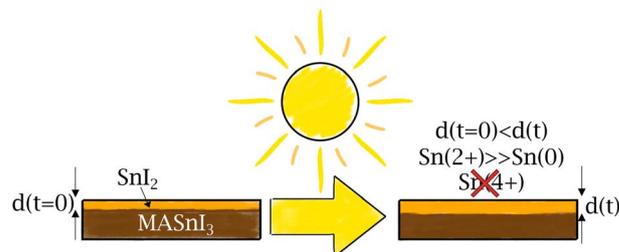
Mohasin Tarek, Ferdous Yasmeen and M. A. Basith*



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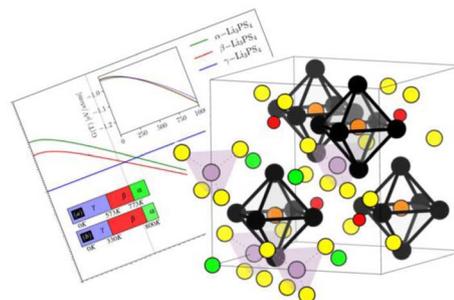
Joana Ferreira Machado, Jeremy Hieulle, Aline Vanderhaegen and Alex Redinger*



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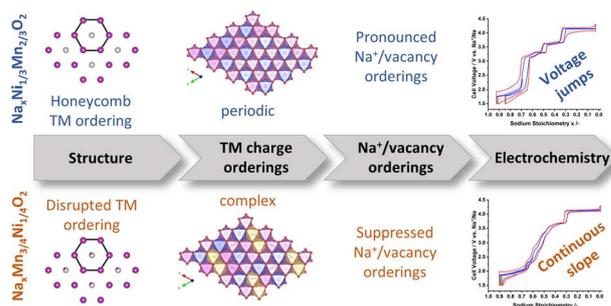
Asif Iqbal Bhatti, Sandeep Kumar, Catharina Jaeken, Michael Sluydts, Danny E. P. Vanpoucke and Stefaan Cottenier*



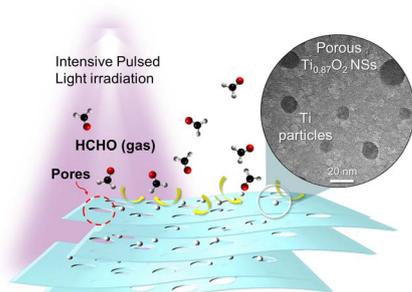
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From structure to electrochemistry: the influence of transition metal ordering on Na⁺/vacancy orderings in P2-type Na_xMO₂ cathode materials for sodium-ion batteries

Lukas Fridolin Pfeiffer,* Manuel Dillenz, Nora Burgard, Premysl Beran, Daniel Roscher, Maider Zarrabeitia, Paul Drews, Charles Hervoches, Daria Mikhailova, Ahmad Omar, Volodymyr Baran, Neelima Paul, Mohsen Sotoudeh, Michael Busch, Margret Wohlfahrt-Mehrens, Axel Groß, Stefano Passerini and Peter Axmann*



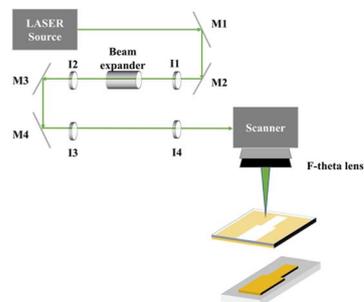
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Ultrafast formation of porosity and heterogeneous structures on 2D oxides via momentary photothermal effect

Ahrom Ryu, Bo-In Park, Hyun-Jae Lee, Jung-Won An, Jeong-Jun Kim, Sahn Nahm, Seong H. Kim, Byungju Lee,* Ji-Won Choi* and Ji-Soo Jang*

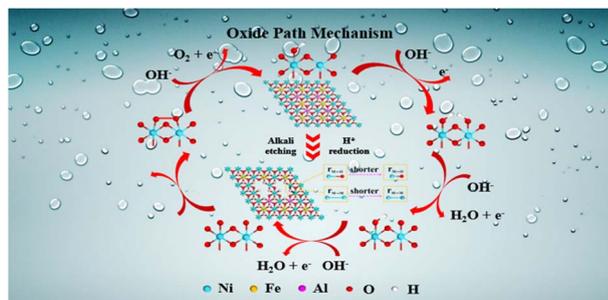
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Non-enzymatic low-level glucose detection electrode fabricated via single-step laser-induced forward transfer

Pong-Ping Liu, Shing-Fung Lau and Chien-Fang Ding*

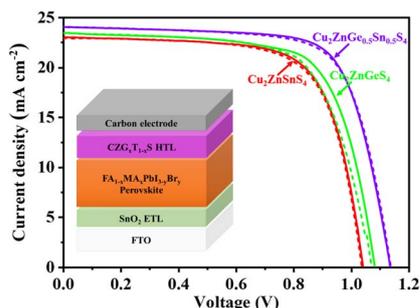
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Atomic cation and anion co-vacancy defects boosted the oxide path mechanism of the oxygen evolution reaction on NiFeAl-layered double hydroxide

Zhaoyan Li, Duo Wang, Hongguang Kang, Zhongning Shi, Xianwei Hu, Hongbin Sun and Junli Xu*

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Composition engineering of a $\text{Cu}_2\text{ZnGe}_x\text{Sn}_{1-x}\text{S}_4$ nanoparticle hole transport layer for carbon electrode-based perovskite solar cells

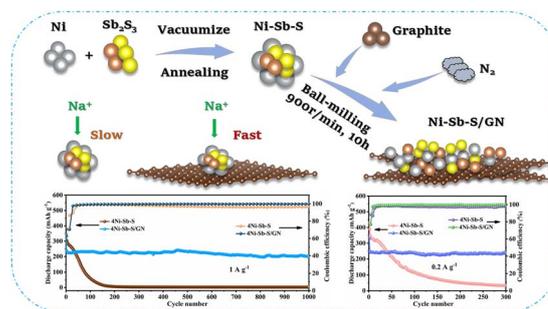
Nian Cheng,* Weiwei Li, Zhenyu Xiao, Han Pan, Dingshan Zheng and Wen-Xing Yang*



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Enhanced electrochemical performance of NiSbS/NiSb/NiS nanocomposites anchored on graphite nanosheets for sodium-ion battery applications

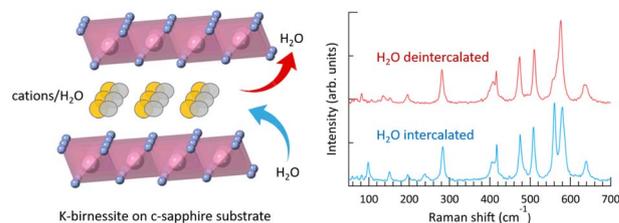
Shandong Huang, Dong Feng,* Yuanzhi Zhu, Yihong Ding,* Delong Xie, Yi Mei and Tianbiao Zeng*



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Raman spectroscopy study of K-birnessite single crystals

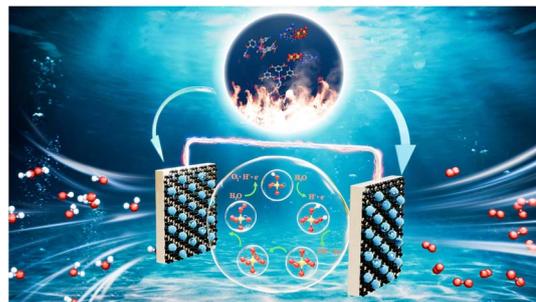
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Co-MOF-derived core-shell CoP@Co₃O₄ nanoparticle loaded N-doped graphene: an efficient catalyst for the oxygen evolution reaction

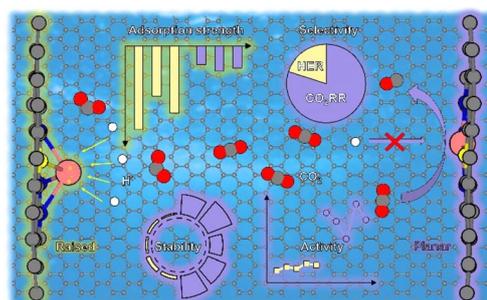
Xian-Chen Meng, Jian Luan,* Yi Liu, Yu-Shu Sheng, Fu-Yu Guo, Peng Zheng, Wen-Long Duan* and Wen-Ze Li*



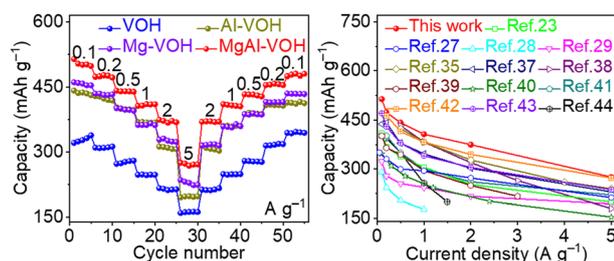
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Structural rule of heteroatom-modified single-atom catalysts for the CO₂ electroreduction reaction

Xinyuan Sui, Haiyang Yuan* and Yu Hou*



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Bimetallic-ion co-intercalation to stabilize vanadium–oxygen bonds towards high-performance aqueous zinc-ion storage

Yulin Jiang, Xia Wen, Yinuo Li, Yuhang Li, Yanan Peng, Wang Feng, Xiaohui Li, Junbo Yang, Luying Song, Ling Huang, Hang Sun and Jianping Shi*

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Scalable and environmentally friendly MXene-tetrahedrites for next-generation flexible thermoelectrics

Priyanshu Banerjee, Jiyuan Huang, Jacob Lombardo, Swapnil B. Ambade, Rohan B. Ambade, Tae Hee Han, Srushti Kulkarni, Shreyasi Sengupta, Zeev Rosenzweig, Howard Fairbrother, Sichao Li, Sunmi Shin and Deepa Madan*

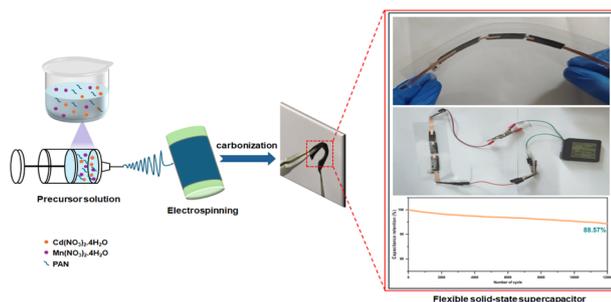
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Co nanoparticles encapsulated in N-doped carbon nanotube materials derived from new metal–organic frameworks for oxygen electrocatalysis

Jieling Zhang, Weiran Suo, Yu Han, Yiwen Cao, Yuhan Xu, Mengying Wang, Zuo Zhong Liang,* Yuan Wang,* Haoquan Zheng* and Rui Cao*

680



Fabrication and electrochemical evaluation of flexible spinel CdMn₂O₄ carbon nanofibers for advanced supercapacitor applications

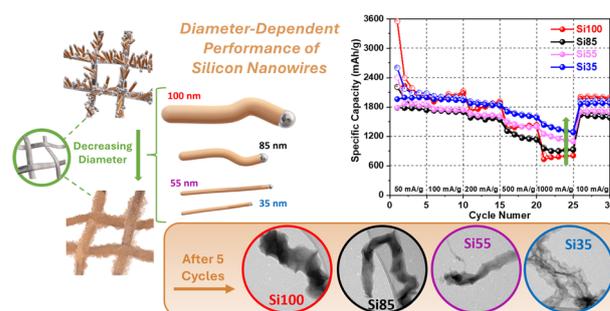
Akashkumar P. Patel, Deep S. Sharma, Sanjay N. Bariya, Yash G. Kapdi, Jaydip D. Solanki, Saurabh S. Soni, Vaibhav K. Patel* and Sanjay H. Panjabi*



696

Diameter dependent performance of silicon nanowire anodes grown on 3D current collectors for lithium-ion batteries

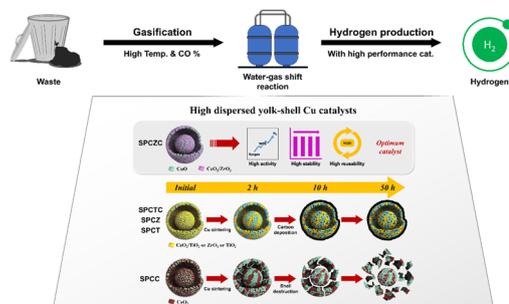
Mei Li, Niraj Nitish Patil, Shalini Singh, David McNulty* and Kevin M. Ryan*



704

Highly dispersed copper-based nanocomposite synthesis via spray pyrolysis: towards waste-to-hydrogen production through the water-gas shift reaction

I-Jeong Jeon, Jae Seob Lee, Kun Woo Baek, Chang-Hyeon Kim, Ji-Hyeon Gong, Won-Jun Jang,* Jung Sang Cho* and Jae-Oh Shim*

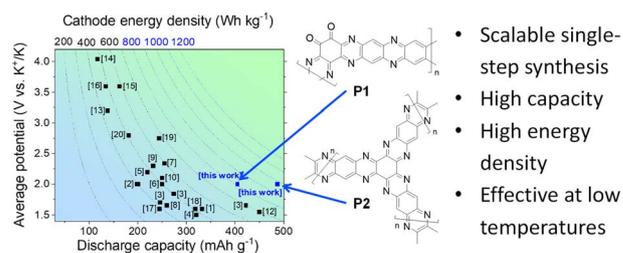


721

Potassium batteries for low temperature applications using high energy density organic cathodes

Elena V. Shchurik, Alexander V. Mumyatov, Ivan S. Zhidkov, Tatiana A. Savinykh, Guzaliya R. Baymuratova, Alexander F. Shestakov, Olga A. Kraevaya* and Pavel A. Troshin*

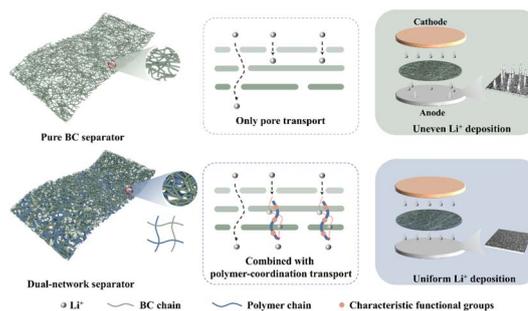
Promising organic cathodes for potassium batteries



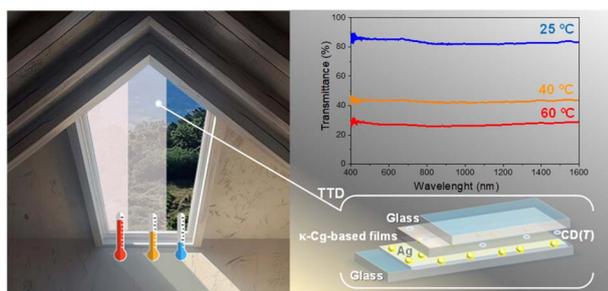
730

Dual-network bacterial cellulose-based separators with high wet strength and a dual ion transport mechanism for uniform lithium deposition

Chen Cheng, Rendang Yang, Yang Wang,* Xiaohui Guo and Jie Sheng



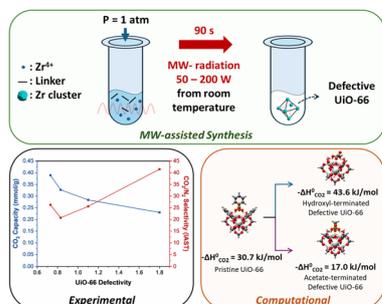
743



Eco-friendly innovation: three-mode sun-actuated thermotropic devices integrating κ -carrageenan-based film doped with *Arundo donax* leaf-derived carbon dots and 1-butyl-3-methyl-1*H*-imidazolium chloride

S. C. Nunes,^{*} T. A. G. Duarte, R. F. P. Pereira, L. Fu, R. A. S. Ferreira, P. Almeida and V. de Zea Bermudez^{*}

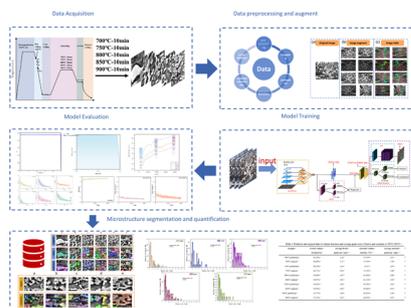
762



Rapid one-pot microwave-assisted synthesis and defect engineering of UiO-66 for enhanced CO₂ capture

Dong A. Kang, Amro M. O. Mohamed, Christian Murphy, Andres Ramos, Ioannis G. Economou, Jinsoo Kim^{*} and Hae-Kwon Jeong^{*}

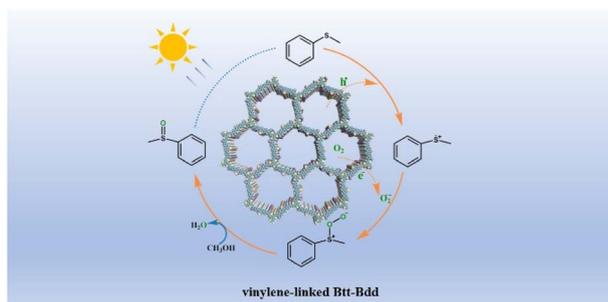
772



An automatic segmentation and quantification method for austenite and ferrite phases in duplex stainless steel based on deep learning

Lun Che, Zhongping He,^{*} Kaiyuan Zheng, Xiaotian Xu and Feng Zhao

786



Vinylene-linked donor-acceptor covalent organic polymers with low exciton binding energy for enhanced photocatalytic oxidation of sulfides

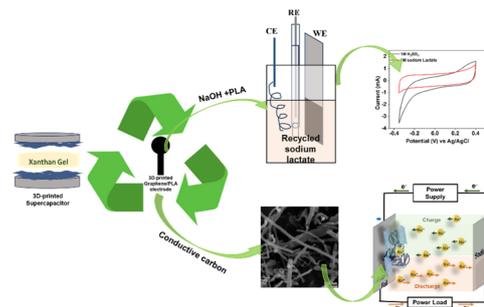
Wenhao Liu, Yujie Li, Fang Duan,^{*} Haiping Liu, Yanyan Ren, Shengrong Yan, Shuanglong Lu, Mingliang Du, Xin Chen and Jun Wang^{*}



795

Recyclable HF-free $\text{Ti}_3\text{C}_2\text{T}_x$ 3D-printed supercapacitors: their second life in sodium-ion batteries

Bindu Kalleshappa and Martin Pumera*



EXPRESSIONS OF CONCERN

808

Expression of concern: Reduced graphene oxide nanosheets decorated with Au, Pd and Au–Pd bimetallic nanoparticles as highly efficient catalysts for electrochemical hydrogen generation

Gitashree Darabdhara, Mohammed A. Amin,* Gaber A. M. Mersal, Emad M. Ahmed, Manash R. Das,* Mohamed B. Zakaria, Victor Malgras, Saad M. Alshehri, Yusuke Yamauchi, Sabine Szunerits and Rabah Boukherroub*

809

Expression of concern: Construction of desert rose flower-shaped NiFe LDH– Ni_3S_2 heterostructures via seawater corrosion engineering for efficient water-urea splitting and seawater utilization

Zhao-Hui Zhang, Zhi-Ran Yu, Yi Zhang, Alexandre Barras, Ahmed Addad, Pascal Roussel, Long-Cheng Tang, Mu. Naushad, Sabine Szunerits and Rabah Boukherroub*

810

Expression of concern: Preparation of reduced graphene oxide– $\text{Ni}(\text{OH})_2$ composites by electrophoretic deposition: application for non-enzymatic glucose sensing

Palaniappan Subramanian, Joanna Niedziolka-Jonsson, Adam Lesniewski, Qian Wang, Musen Li, Rabah Boukherroub and Sabine Szunerits*

