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# Journal of Materials Chemistry A

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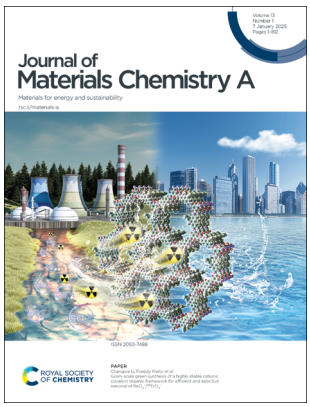

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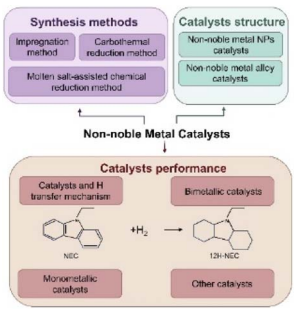


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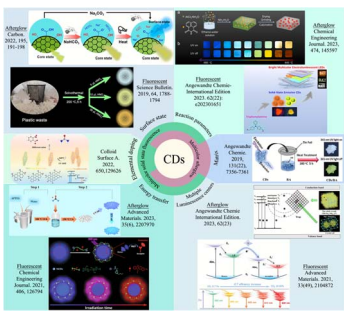

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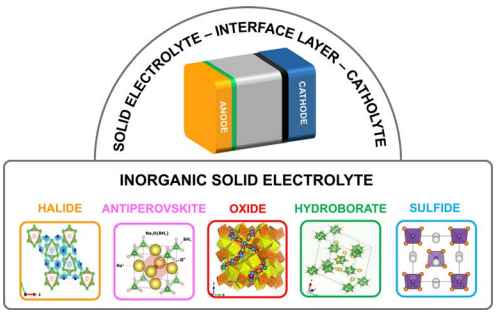


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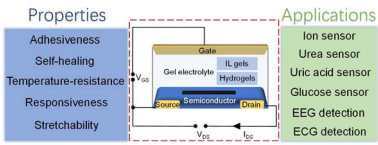


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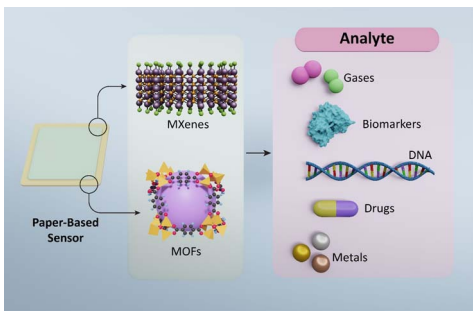


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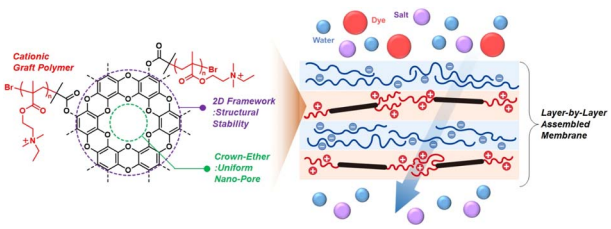

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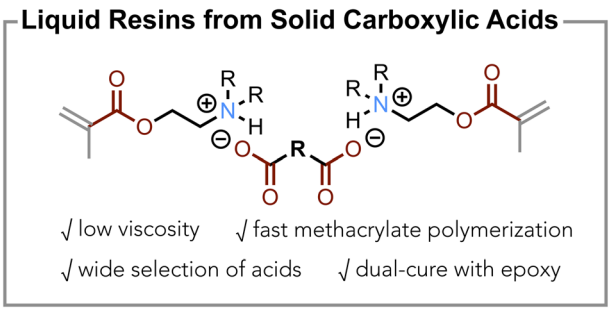


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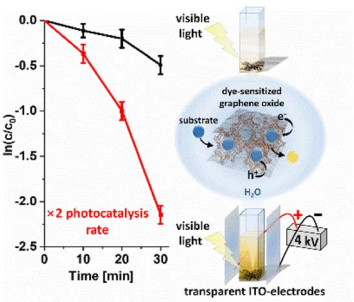


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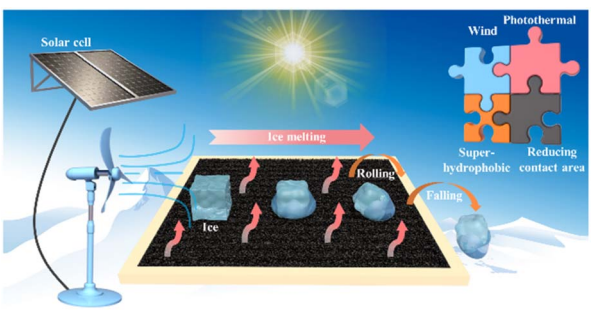


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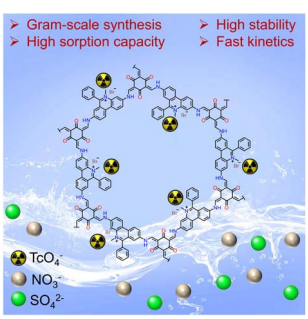


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Changxia Li,* Justyna Florek, Patrick Guggenberger and Freddy Kleitz*



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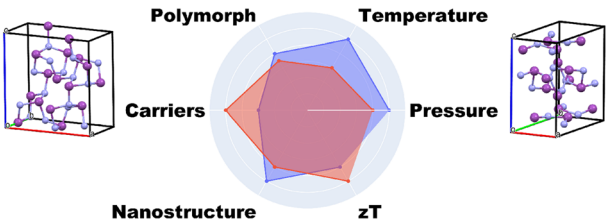


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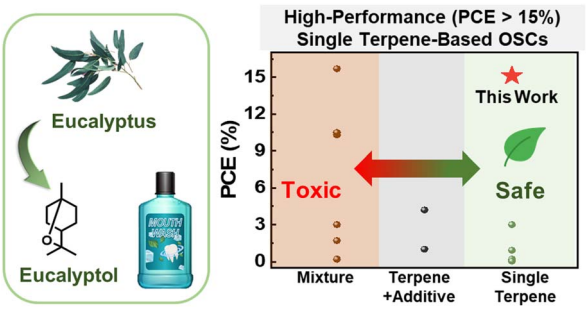


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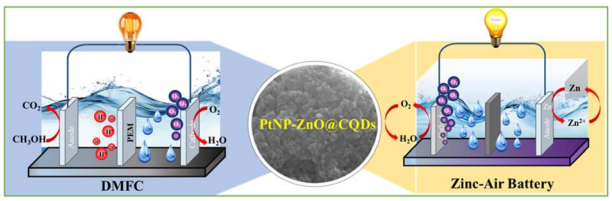


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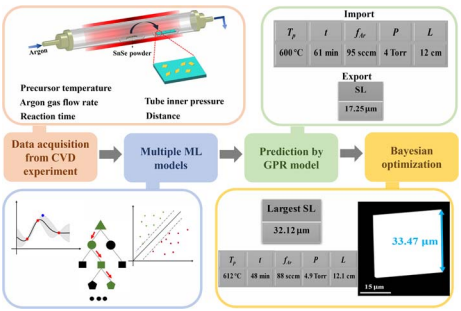

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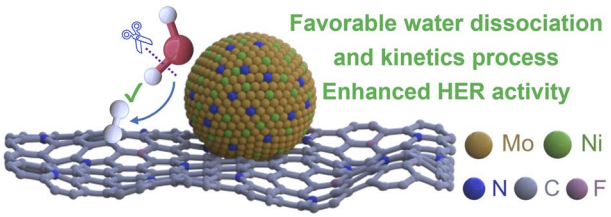


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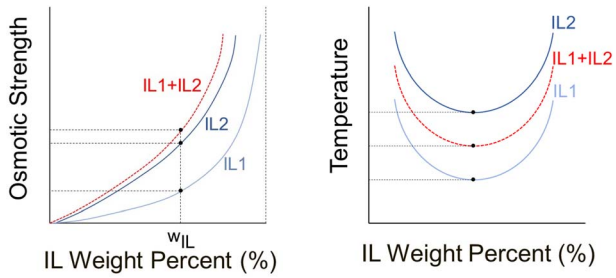


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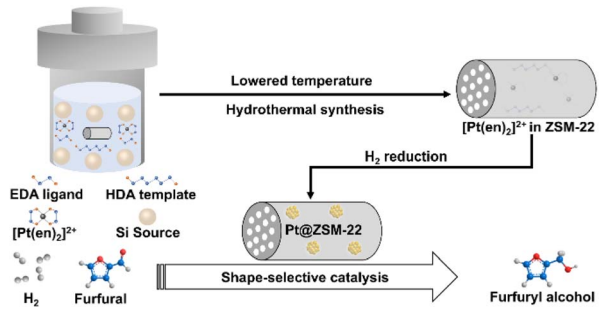


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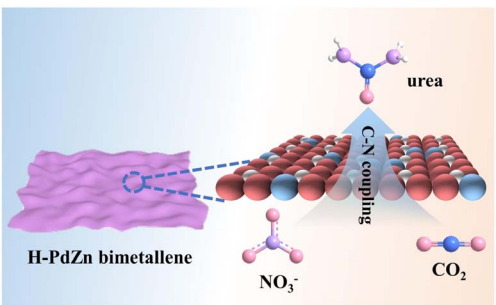


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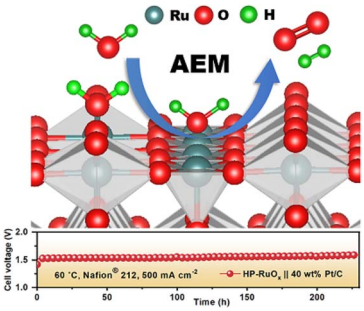


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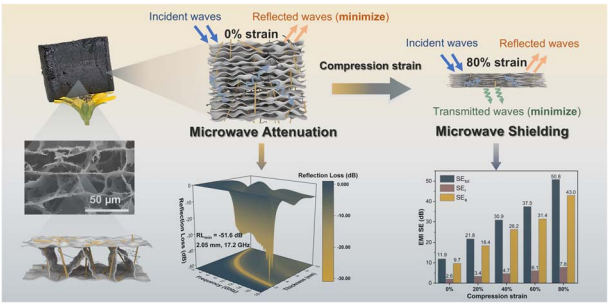


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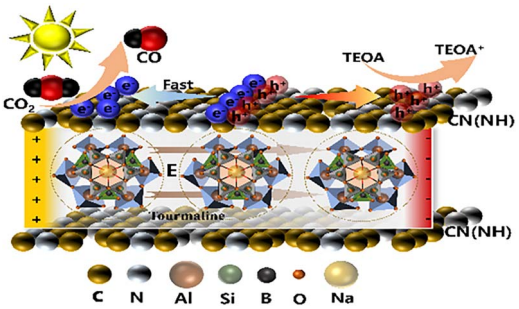


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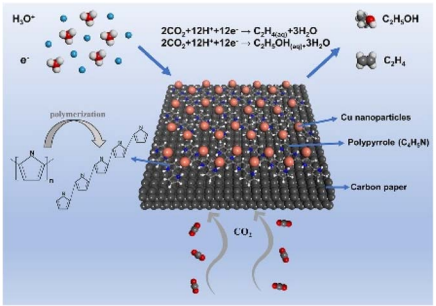

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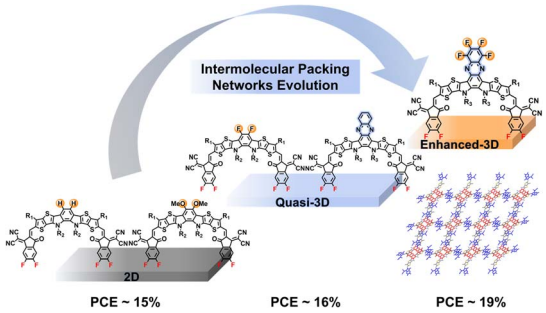


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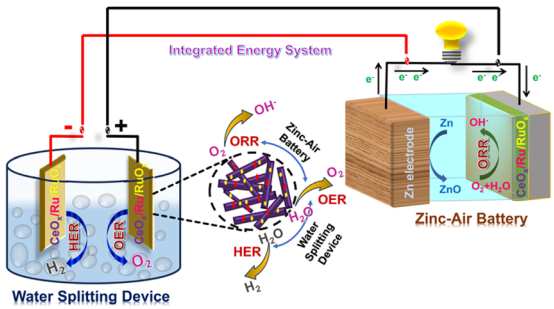


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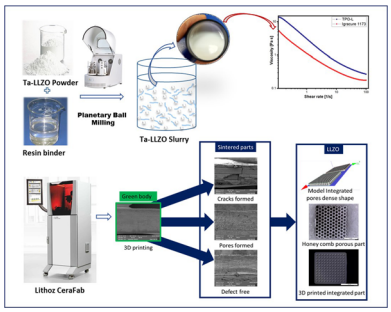


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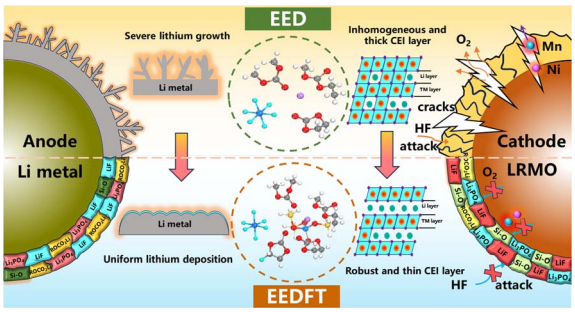


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Qiangfeng Zhang, Shijie Xu, Haipeng Zhu, Zhao Chen, Libao Chen, Chunxiao Zhang* and Weifeng Wei



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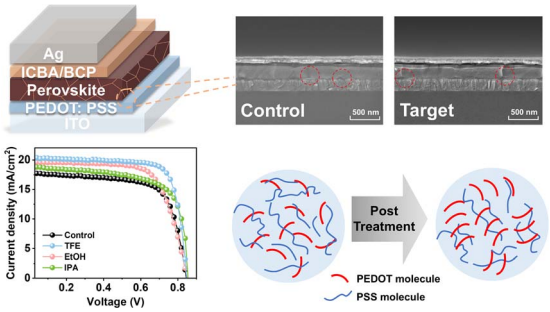


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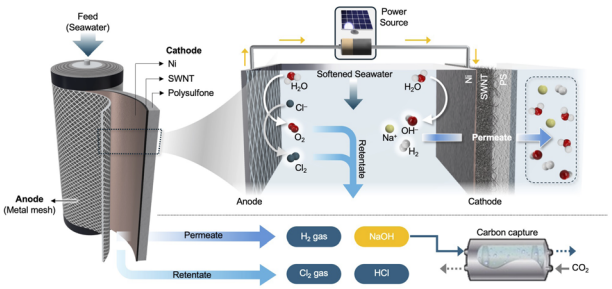


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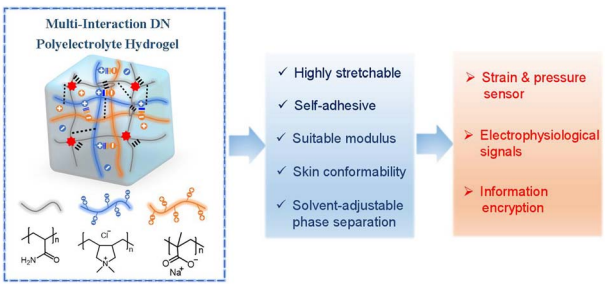
**A multi-interaction conductive double-network polyelectrolyte hydrogel with high stretchability, self-adhesion, and tunable transparency for bioelectronic sensing and information encryption**

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

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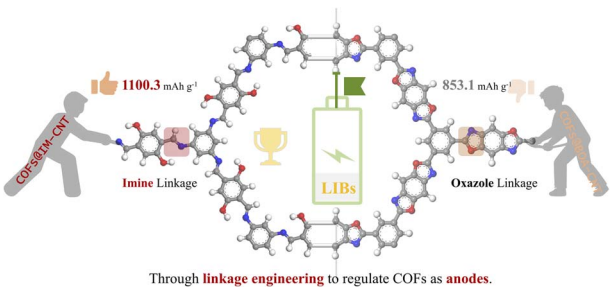
Changyu Weng, Hongmei Yuan, Jie Wang, Longlong Ma and Jianguo Liu*



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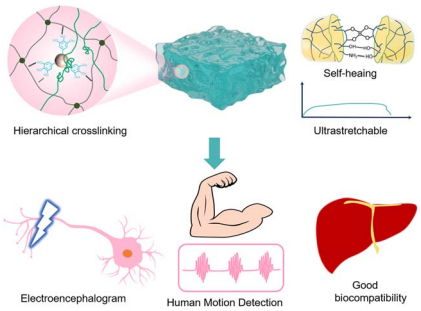


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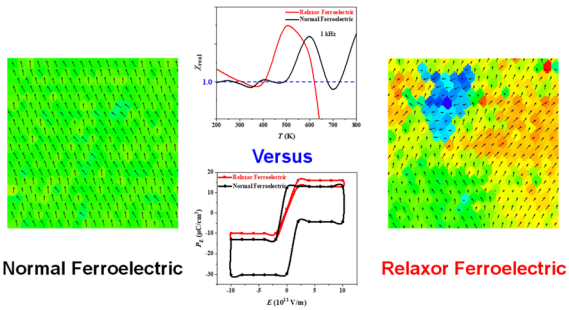


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Tong Guan, Quan-Ao He and Shuang Chen*

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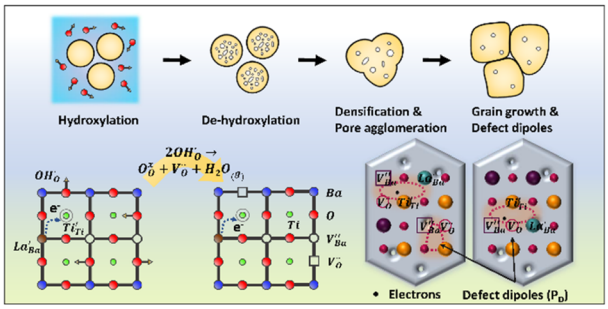


**Enhanced colossal permittivity in mono-doped $BaTiO_3$ *via* particle hydroxylation-induced defect dipoles**

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

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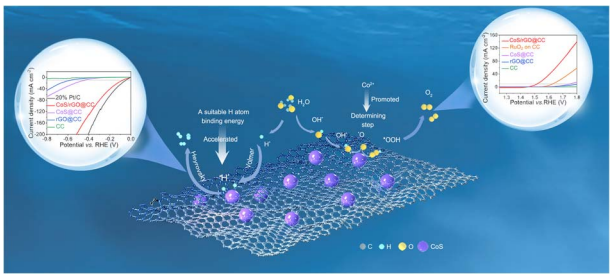

**Facile engineering of CoS/rGO heterostructures on carbon cloth for efficient all-pH hydrogen evolution reaction and alkaline water electrolysis**

Yuxian Chen, Jiayi Rong, Qiaolin Fan, Meng Sun, Qiuyi Deng, Zhonghua Ni, Xiao Li* and Tao Hu*



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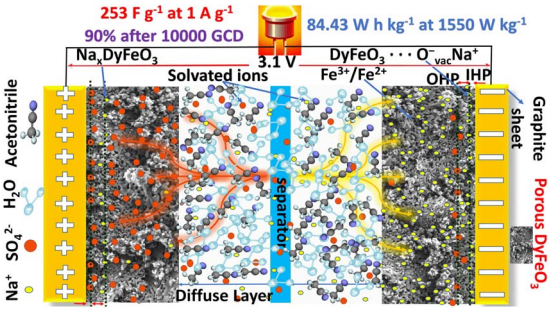
**High-voltage symmetric supercapacitors developed by engineering $DyFeO_3$ electrodes and aqueous electrolytes**

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

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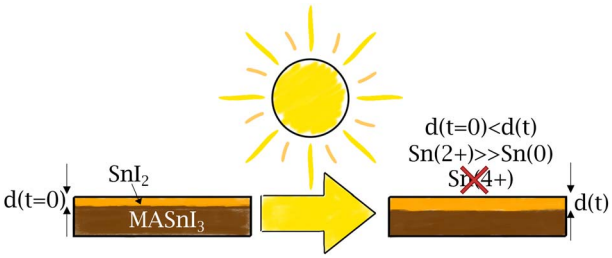
**Light-induced degradation of methylammonium tin iodide absorber layers**

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

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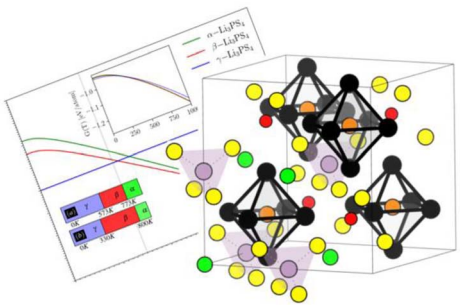
**The devil in the details: lessons from $Li_6PS_5X$ for robust high-throughput workflows**

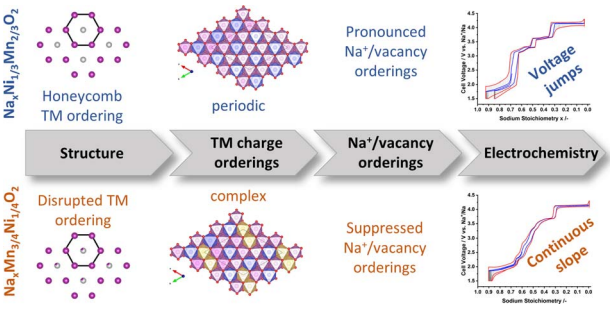
Asif Iqbal Bhatti, Sandeep Kumar, Catharina Jaeken, Michael Sluydts, Danny E. P. Vanpoucke and Stefaan Cottenier*



540

**From structure to electrochemistry: the influence of transition metal ordering on $Na^+$/vacancy orderings in P2-type $Na_xMO_2$ 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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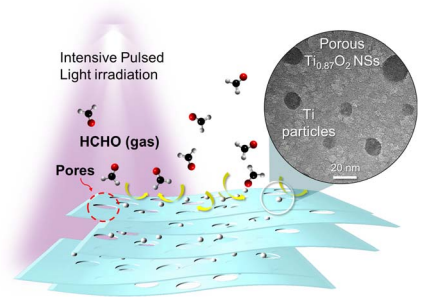


**Ultrafast formation of porosity and heterogeneous structures on 2D oxides *via* momentary photothermal effect**

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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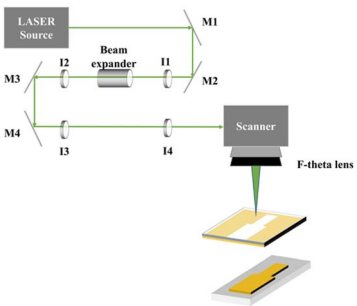


**Non-enzymatic low-level glucose detection electrode fabricated *via* single-step laser-induced forward transfer**

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

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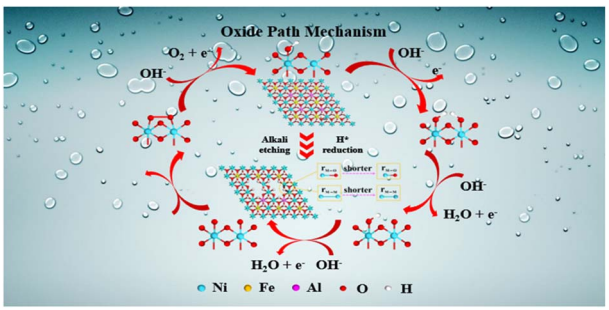


**Atomic cation and anion co-vacancy defects boosted the oxide path mechanism of the oxygen evolution reaction on NiFeAl-layered double hydroxide**

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

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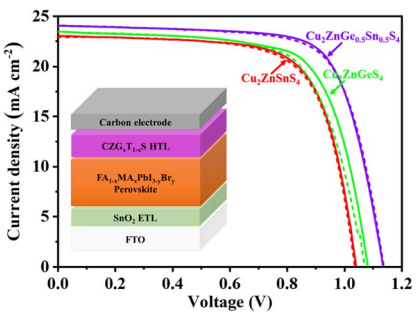


**Composition engineering of a $Cu_2ZnGe_xSn_{1-x}S_4$ nanoparticle hole transport layer for carbon electrode-based perovskite solar cells**

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


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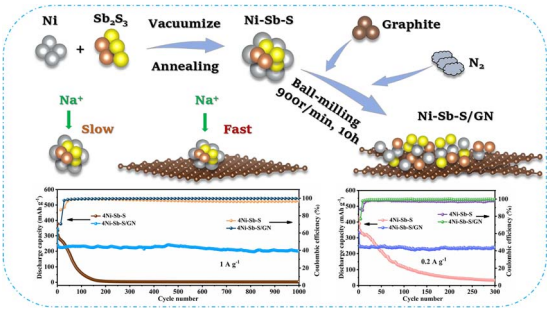
**Enhanced electrochemical performance of NiSbS/NiSb/NiS nanocomposites anchored on graphite nanosheets for sodium-ion battery applications**

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

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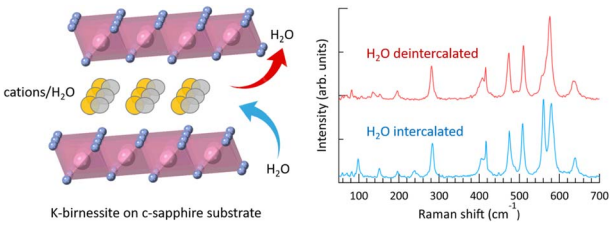
**Raman spectroscopy study of K-birnessite single crystals**

Dong Han Ha,* Gichang Noh, Hakseong Kim, Dong Hwan Kim, Jeongho Kim, Suyong Jung, Chanyong Hwang, Ha Young Lee, Yong Ju Yun, Joon Young Kwak, Kibum Kang and Sam Nyung Yi*

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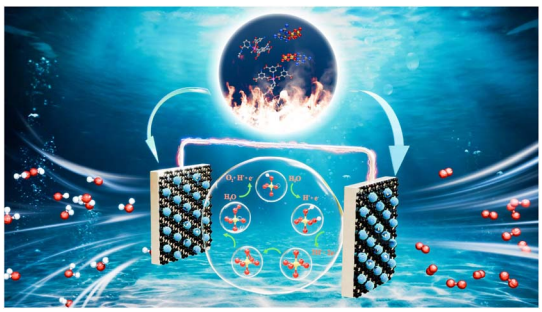
**Co-MOF-derived core–shell CoP@$Co_3O_4$ nanoparticle loaded N-doped graphene: an efficient catalyst for the oxygen evolution reaction**

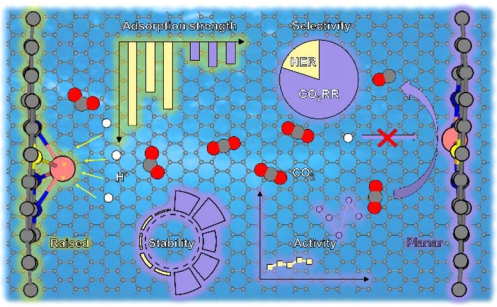
Xian-Chen Meng, Jian Luan,* Yi Liu, Yu-Shu Sheng, Fu-Yu Guo, Peng Zheng, Wen-Long Duan* and Wen-Ze Li*



638

**Structural rule of heteroatom-modified single-atom catalysts for the $CO_2$ electroreduction reaction**

Xinyuan Sui, Haiyang Yuan* and Yu Hou*



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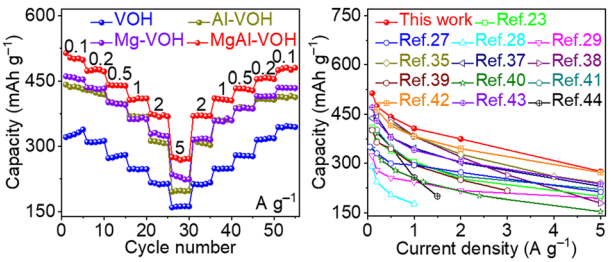


**Bimetallic-ion co-intercalation to stabilize vanadium–oxygen bonds towards high-performance aqueous zinc-ion storage**

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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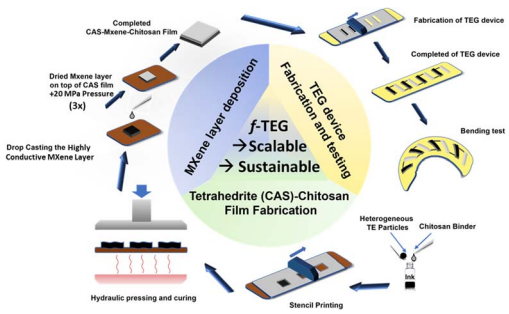


**Scalable and environmentally friendly MXene-tetrahedrites for next-generation flexible thermoelectrics**

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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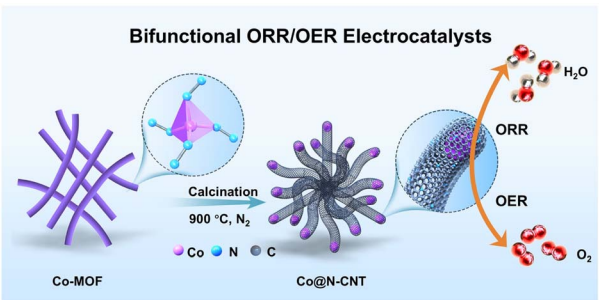


**Co nanoparticles encapsulated in N-doped carbon nanotube materials derived from new metal–organic frameworks for oxygen electrocatalysis**

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

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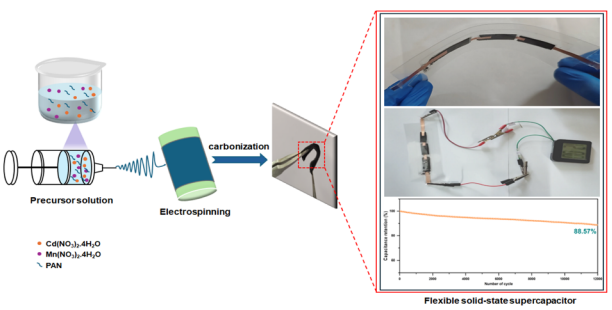


**Fabrication and electrochemical evaluation of flexible spinel $CdMn_2O_4$ carbon nanofibers for advanced supercapacitor applications**

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*



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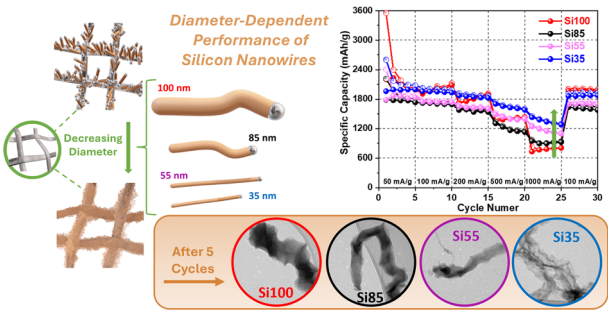
**Diameter dependent performance of silicon nanowire anodes grown on 3D current collectors for lithium-ion batteries**

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

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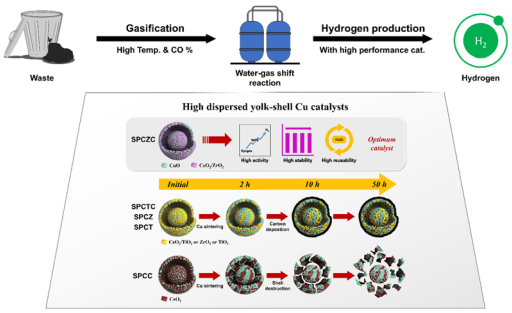
**Highly dispersed copper-based nanocomposite synthesis *via* spray pyrolysis: towards waste-to-hydrogen production through the water-gas shift reaction**

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*

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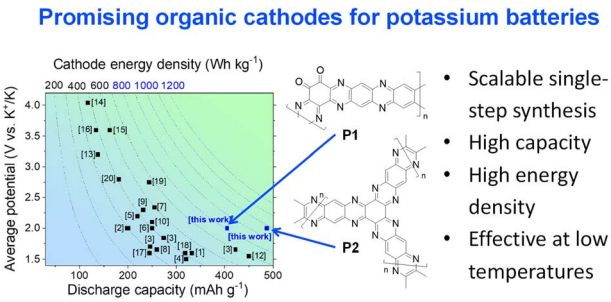
**Potassium batteries for low temperature applications using high energy density organic cathodes**

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*

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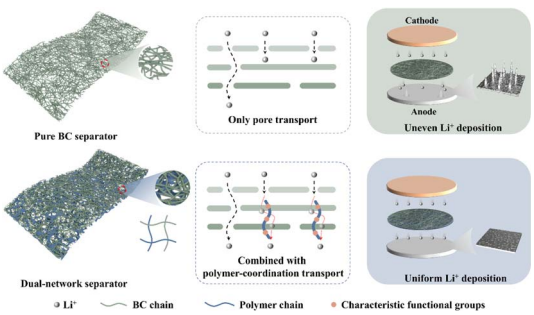
**Dual-network bacterial cellulose-based separators with high wet strength and a dual ion transport mechanism for uniform lithium deposition**

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



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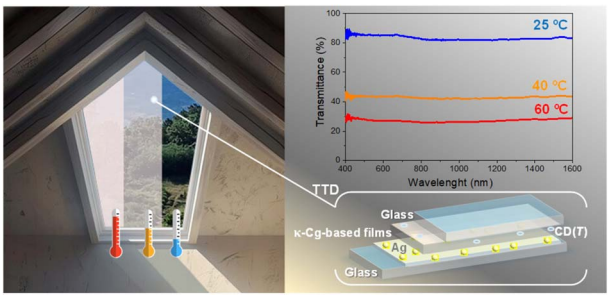


**Eco-friendly innovation: three-mode sun-actuated thermotropic devices integrating κ-carrageenan-based film doped with *Arundo donax* leaf-derived carbon dots and 1-butyl-3-methyl-1*H*-imidazolium chloride**

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

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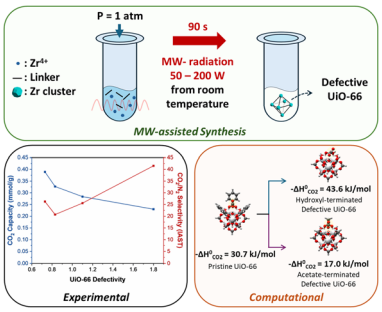


**Rapid one-pot microwave-assisted synthesis and defect engineering of UiO-66 for enhanced $CO_2$ capture**

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

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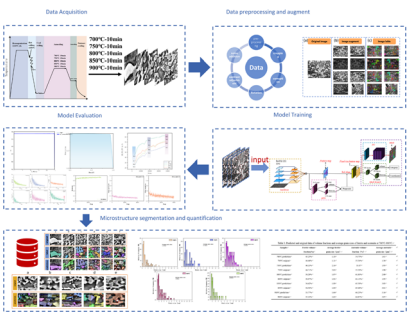

**An automatic segmentation and quantification method for austenite and ferrite phases in duplex stainless steel based on deep learning**

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

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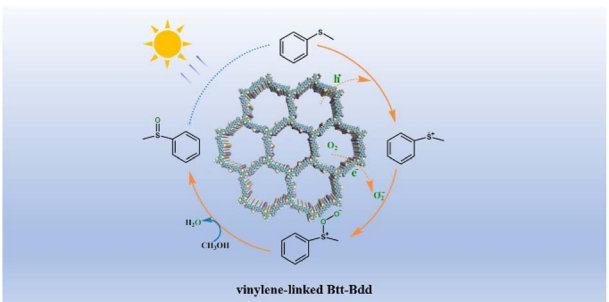


**Vinylene-linked donor–acceptor covalent organic polymers with low exciton binding energy for enhanced photocatalytic oxidation of sulfides**

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


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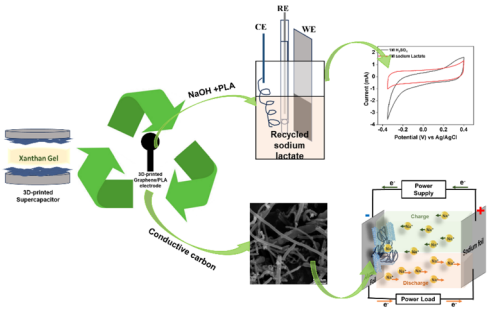
**Recyclable HF-free $Ti_3C_2T_x$ 3D-printed supercapacitors: their second life in sodium-ion batteries**

Bindu Kalleshappa and Martin Pumera*




## EXPRESSIONS OF CONCERN

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**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*

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**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*

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**Expression of concern: Preparation of reduced graphene oxide–$Ni(OH)_2$ 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*