

Materials Horizons

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Cover

See Hilary A. Johnson *et al.*, pp. 10623–10629. Image reproduced by permission of Lawrence Livermore National Lab from *Mater. Horiz.*, 2025, 12, 10623.

EDITORIALS

10386

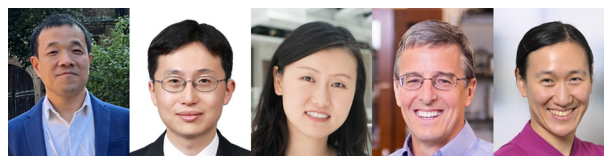
Materials Horizons Emerging Investigator Series: Professor Hyuk-Jun Kwon, Daegu Gyeongbuk Institute of Science and Technology (DGIST), Daegu, Republic of Korea



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Introduction to the soft wearable sensors themed collection

Wenlong Cheng, Dae-Hyeong Kim, Nanshu Lu, John Rogers and Alina Rwei



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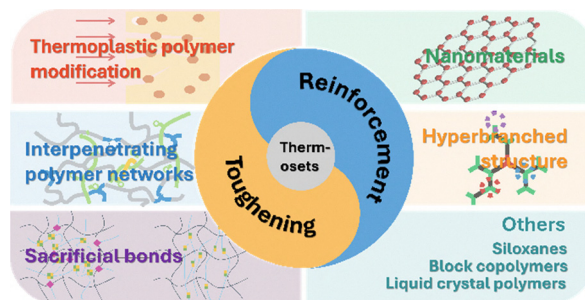
Fundamental questions
Elemental answers

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Simultaneous reinforcement and toughening methods and mechanisms of thermosets: a review

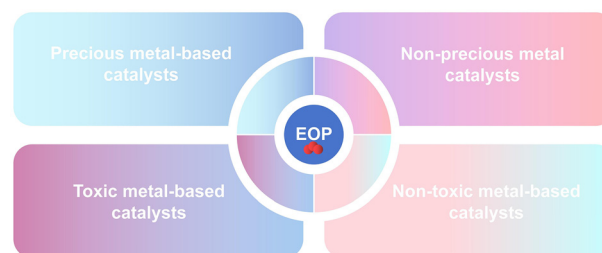
Shenao Xue, Zhen Yu, Zhaobin Tang and Yanlin Liu*



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Perspective on water electrolysis for ozone production: electrocatalyst design and development

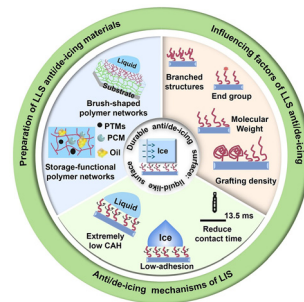
Zheng Zhu, Qiangqiang Song, Lili Jiang,* Minmin Yan,* Sheng Chen* and Jingjing Duan*



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Toward durable anti/de-icing technologies: liquid-like surfaces with engineered abrasion resistance

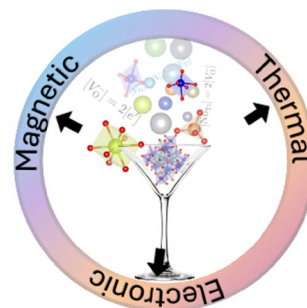
Yifan Yan, Fuchao Yang,* Daheng Wu, Muhammad Sohail Asghar and Zhiguang Guo*



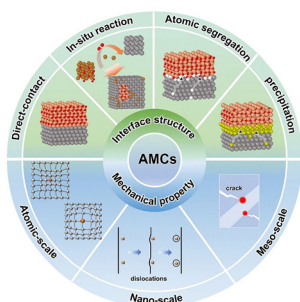
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Disorder by design: unveiling local structure and functional insights in high entropy oxides

John P. Barber, William J. Deary, Andrew N. Titus, Gerald R. Bejger, Saeed S. I. Almishal and Christina M. Rost*



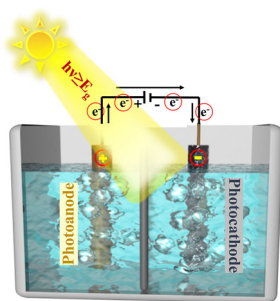
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Recent advances in interface engineering in aluminum matrix composites reinforced by nano-ceramic phases: from atomic structure to mechanical performance

Zhenbo Wang, Xudong Rong,* Dongdong Zhao,* Xiang Zhang, Chunni He and Naiqin Zhao*

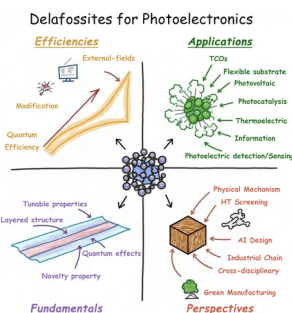
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Advances and challenges of metal organic frameworks (MOFs) and derivatives in photoelectrocatalytic water splitting

Xin-Jie Tian, Si-Jia Guo, Zheng-Yi Wu, Na Xu, Guanqun Han,* Yong-Ming Chai and Bin Dong*

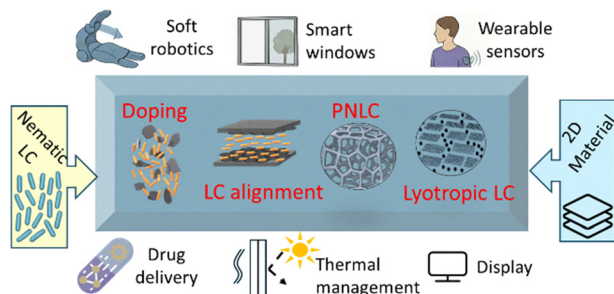
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Emerging multi-functional delafossite materials: frontier advances and prospective breakthroughs in photoelectronic applications

Zong-Yan Zhao

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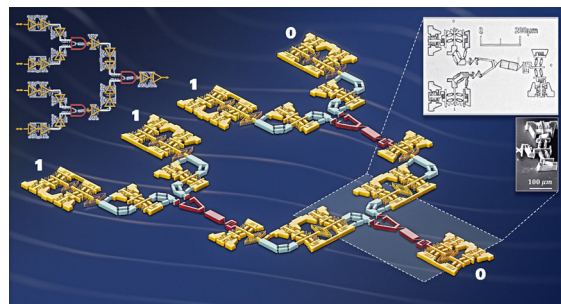
Pragnya Satapathy, Gayathri R. Pisharody, D. S. Shankar Rao, H. S. S. Ramakrishna Matte and S. Krishna Prasad*



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Signal propagation in reversible digital mechanics

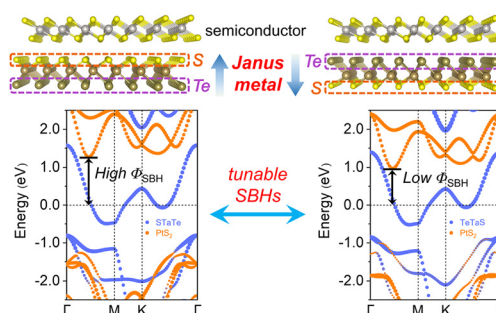
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Janus metal-enabled tunable Schottky barriers in van der Waals contacts via interfacial polarization modulations

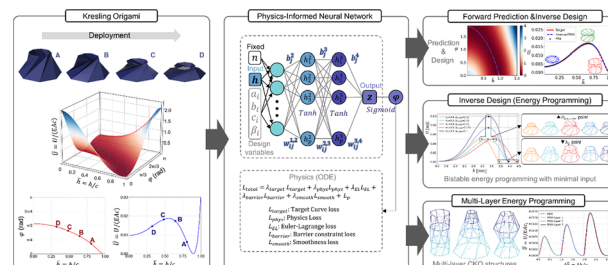
Yanze Feng, Liujuan Qi,* Yu Du, Nan Zhang, Yuting Zou,
Zhiming Shi, Dabing Li and Shaojuan Li*



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Physics-informed neural networks for programmable origami metamaterials with controlled deployment

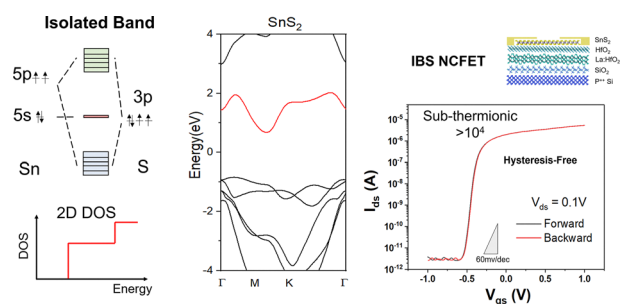
Sukheon Kang, Youngkwon Kim, Jinkyu Yang* and
Seunghwa Ryu*



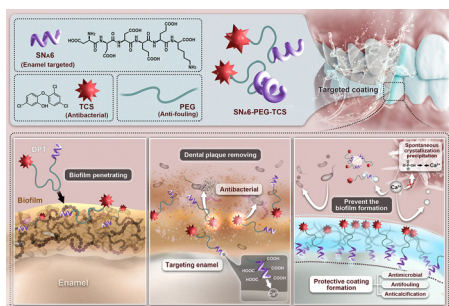
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Achieving wide-range steep slopes in SnS₂ negative capacitance transistors through an isolated band structure and thermionic emission enhancement via Bi contacts

Chong-Myeong Song, Jaewoo Park, Shinbuhm Lee and
Hyuk-Jun Kwon*



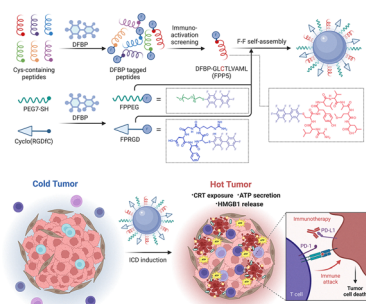
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An engineered peptide–polymer conjugate mimics statherin to block dental calculus formation while preserving oral microbiota

Qiangwei Xin, Li Li, Peng Yu, Yao Zhao, Zhengxin Ma, Hongbo Zhang, Shiran Sun, Jun Luo, Liwei Zheng, Chunmei Ding,* Yang Liu,* Mingming Ding and Jianshu Li*

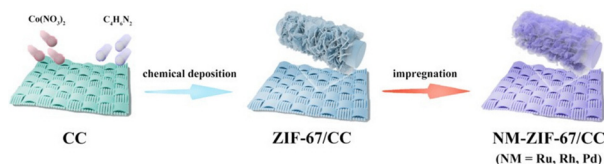
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Fluorobenylation promotes immune-activating peptides to turn cold tumors into hot tumors

Ziqian Mu, Yudan Zhong, Yeli Fan, Junjie Yan, Lizhen Wang, Qian Xu, Donghui Pan, Yuping Xu, Chongyang Chen, Xinyu Wang* and Min Yang*

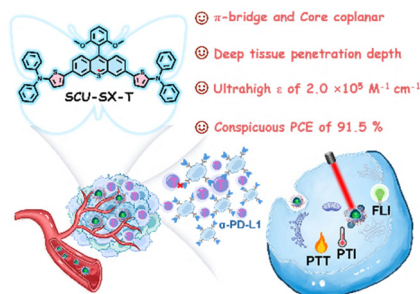
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Atomically dispersed Ru in ZIF-67 as a high-performance HER catalyst: *in situ* structural evolution and deactivation mechanism elucidation

Zhe Liu, Rui Jin, Gui Zhao, Qinshan Tang, Tianrui Kang, Maolin Wang, Jia Liu, Xiaoxiao Huang,* Bingrong Guo,* Xi Liu* and Siwei Li*

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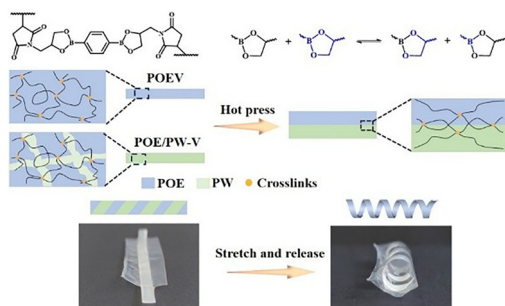


π -Bridge engineering strategy: tailoring S-xanthene dyes with strong absorption for high-efficiency photothermal therapy

Yu Zhao, Rui-Rui Zhang, Nan Wang, Xiao-Li Tian, Li-Na Zhang, Wen-Li Xia, Zhou-Yu Wang, Xiao-Qi Yu* and Kun Li*



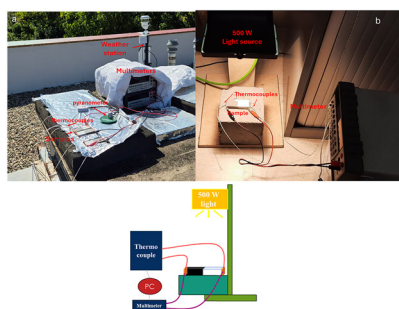
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Stretch-activated morphing enabled by integrated physical–chemical network engineering

Zhao Xu, Zi-Yang Fan, Dun-Wen Wei, Rui-Ying Bao* and Wei Yang*

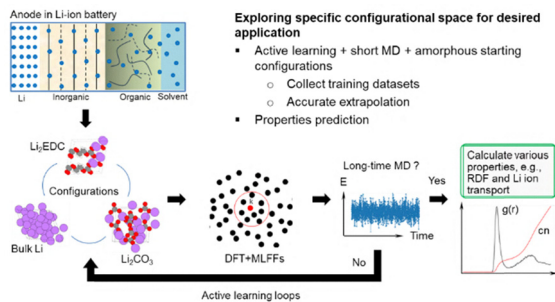
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A chessboard-like photothermoelectric cement cell: a new design for scalable and high efficiency solar energy conversion

Mohamad Barzegar,* Guido Goracci, Pavel Martauz and Jorge S. Dolado*

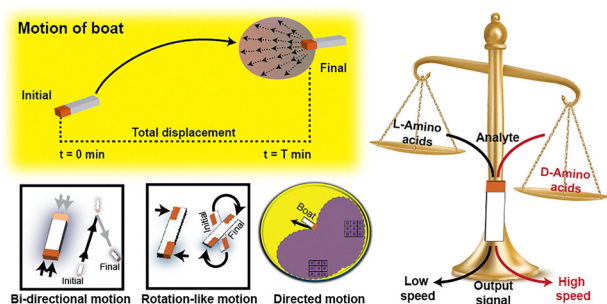
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Enabling accurate modelling of materials for a solid electrolyte interphase in lithium-ion batteries using effective machine learning interatomic potentials

Wen-Qing Li, Gang Wu, Juan Manuel Arce-Ramos, Yang Hao Lau and Man-Fai Ng*

10782



Programmable motion of an enzyme-powered macroscale gel boat: a functional sensing platform

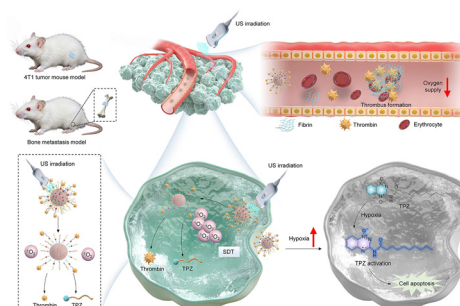
Vinay Ambekar Ranganath and Indrajit Maity*



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Hypoxia-amplifying polymer nanoprodrugs for sonodynamic chemotherapy for breast cancer and bone metastasis *via in situ* thrombogenesis

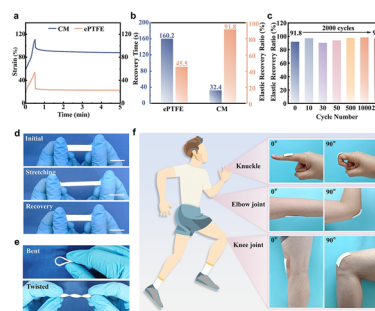
Jiayao Ding, Xing Wang, Fengshuo Wang, Wei Pan,*
Jingchao Li,* Shanjin Wang* and Yong Han*



10806

Highly elastic and breathable PTFE/hydrogel hierarchically compounded dressings for multi-functional protection and rapid wound healing

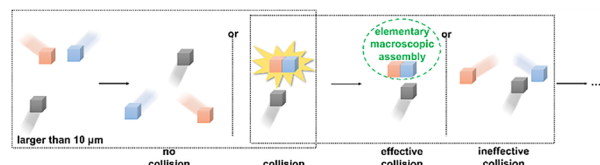
Jingxian Qin, Yanting Han, Zhe Yin, Jinhua Yang,
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Macroscopic assembly behavior of silk/lignin-based adhesive hydrogels: elementary macroscopic assembly

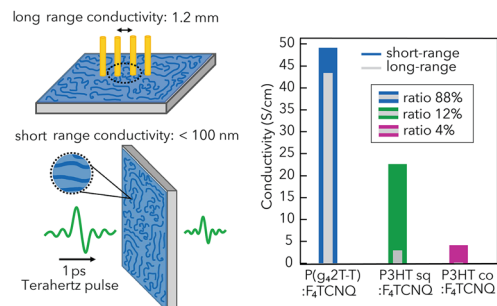
Qinfu Lu, Xinyue Wang, Miaoya Zhang, Zhen Wang,
Xianan Qin,* Baochang Sun* and Shanshan Lv*



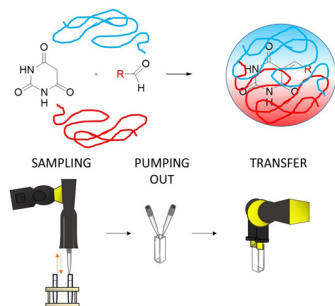
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Distance-resilient conductivity in p-doped polythiophenes

Eva Röck, Demetra Tsokkou, Basil Hunger,
Maximilian M. Horn, Sepideh Zokaei, Renee Kroon,
Jesika Asatryan, Jaime Martín, Christian Müller,*
Martijn Kemerink* and Natalie Banerji*



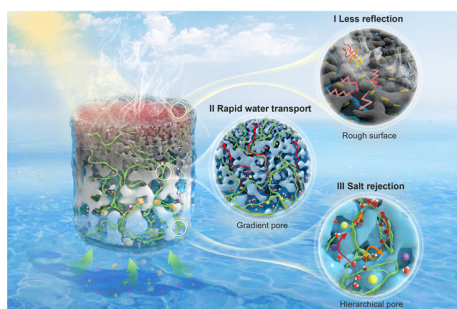
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Smart coacervate catalysis: robotic optimization of Knoevenagel reaction networks

Anna S. Nebalueva, Danila V. Ermolin, Alexandra P. Dergacheva, Alexander S. Novikov, Alexander A. Nikolaev, Bogdan S. Vahrushev, Artemii M. Zenkin, Igor S. Pantyukhin, Alexandr A. Semenov, Aleksei V. Meshkov, Anton A. Muravev,* Daria V. Andreeva* and Ekaterina V. Skorb*

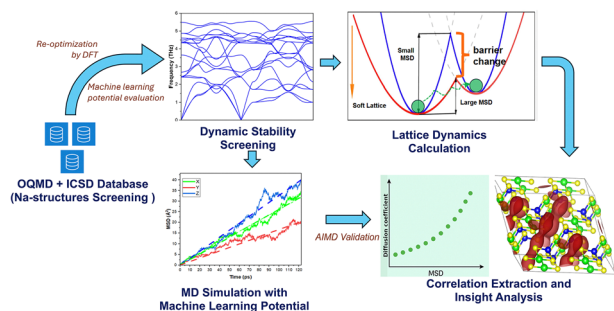
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A biomimetic-inspired cross-scale hydrogel evaporator with synergetic light–heat–water–salt management for highly efficient and stable brine evaporation

Yifei Gong, Yiju Li, Junjie Chen,* Shukang Yang, Yunjing Shao, Dequn Wu, Xueli Wang, Jianyong Yu, Tingting Gao* and Faxue Li*

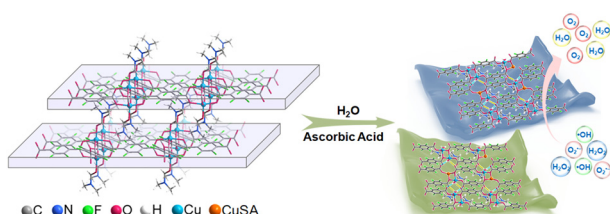
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Machine-learning-assisted discovery of lattice dynamics signatures of sodium superionic conductors

Oghenyoma Aghoghovbia, Riccardo Rurali, Mohammed Al-Fahdi, Joshua Ojih, De-En Jiang and Ming Hu*

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Synthesis of single-atom catalysts with reactive oxygen species-scavenging activity via the dynamic crystal structure transition of coordination polymers

Suo-Su Wei, Shengfeng Zhang, Zhong Xu, Chen Liao, Yong-Biao Wei, Chun-Xia Deng,* Jian Song* and Jin Huang*

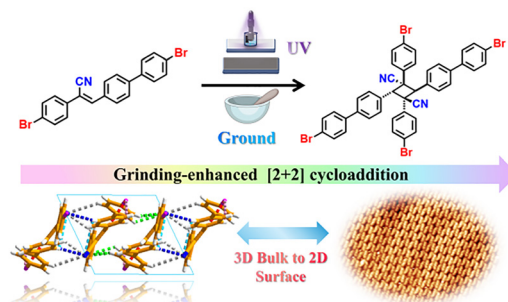


COMMUNICATIONS

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Mechanochemical grinding-enhanced olefin–olefin [2+2] cycloaddition in cyanostilbene derivatives: mechanistic dependence on halogen-based bonding

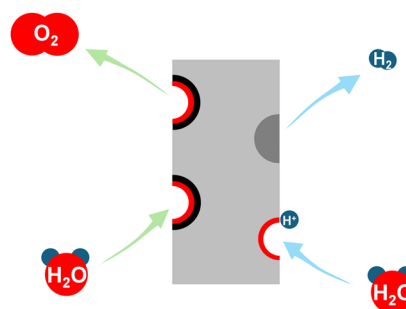
Xiaoyang Zhao, Zifeng Huang, Xiaohua Liu and Xinrui Miao*



10901

Dynamic Mo leaching and vacancy engineering synergize HER and OER kinetics in NiFe-based catalysts for overall water electrolysis

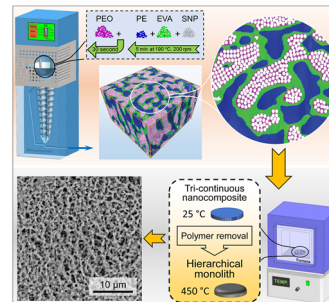
Wendi Zhang, Yuxuan Xiao, Lun Li, Zhichao Yu, Jinxian Feng, Chengcheng Zhong, Weng Fai Ip and Hui Pan*



10911

Tri-continuous polymer templates enable scalable fabrication of hierarchical nanoparticle monoliths

Aylin Habibiyan, Shohei Yoshida, Rajas Sudhir Shah and Milana Trifkovic*



CORRECTION

10920

Correction: An immunological electrospun scaffold for tumor cell killing and healthy tissue regeneration

Xingzhi Liu, Hongbo Zhang, Ruoyu Cheng, Yanzheng Gu, Yin Yin, Zhiyong Sun, Guoqing Pan, Zhongbin Deng, Huilin Yang, Lianfu Deng, Wenguo Cui,* Helder A. Santos* and Qin Shi*

