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IN THIS ISSUE

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Cover
See Peng Xiao, Tao Chen *et al.*, pp. 1264–1273.
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EDITORIALS

1056

Materials Horizons **Emerging Investigator Series: Dr Yue (Jessica) Wang, University of California, Merced, USA**

1058

Materials Horizons **Emerging Investigator Series: Dr Dominik Kubicki, University of Warwick, UK**

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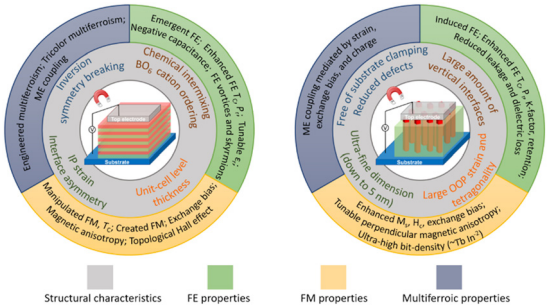
REVIEWS

1060

Interface-related phenomena in epitaxial complex oxide ferroics across different thin film platforms: opportunities and challenges

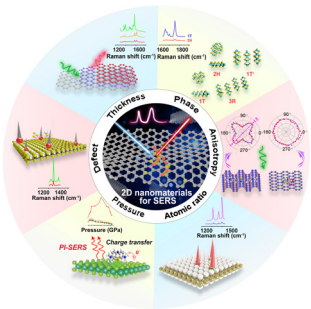
Judith L. MacManus-Driscoll,* Rui Wu* and Weiwei Li*



1087

Spotting the driving forces for SERS of two-dimensional nanomaterials

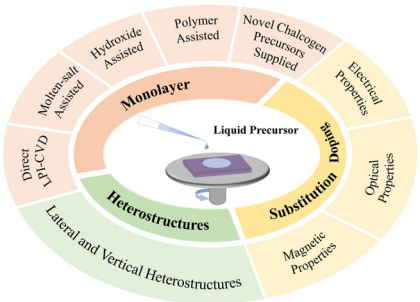
Jing Jin, Zhinan Guo,* Dianyuan Fan and Bing Zhao*



1105

Liquid-precursor-intermediated synthesis of atomically thin transition metal dichalcogenides

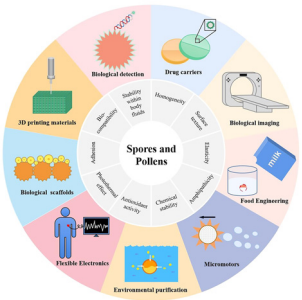
Huiyan Guan, Bei Zhao,* Weiwei Zhao and Zhenhua Ni*



1121

Extraordinary microcarriers derived from spores and pollens

Danshan Zhao, Yawen Li, Zhidong Zhang, Tian Xu, Chao Ye,* Tianqiong Shi* and Yuetong Wang*



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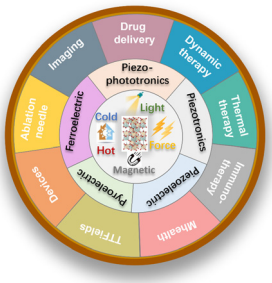
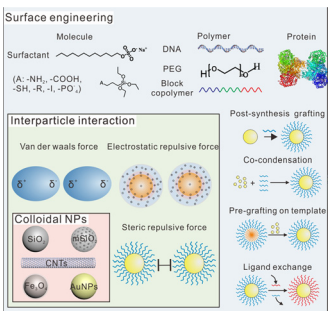
1140



The fundamentals and applications of piezoelectric materials for tumor therapy: recent advances and outlook

Yan Wang, Pengyu Zang, Dan Yang,* Rui Zhang, Shili Gai and Piaoping Yang*

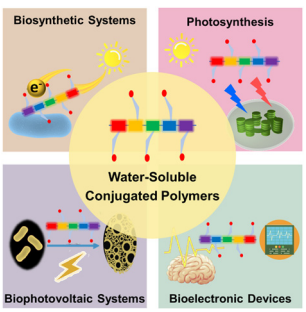
1185



Surface engineering of colloidal nanoparticles

Xinxin Jing, Yueyue Zhang, Min Li, Xiaolei Zuo, Chunhai Fan* and Junhua Zheng*

1210

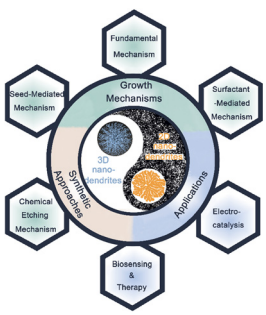


Water-soluble conjugated polymers for bioelectronic systems

Zenghao Wang, Hongrui Lin, Miaomiao Zhang, Wen Yu, Chuanwei Zhu, Pengcheng Wang, Yiming Huang, Fengting Lv, Haotian Bai* and Shu Wang*

MINIREVIEW

1234



Noble metal nanodendrites: growth mechanisms, synthesis strategies and applications

Ke Guo, Dongdong Xu,* Lin Xu,* Yafei Li and Yawen Tang

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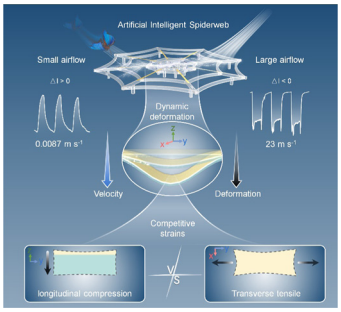
1264

Dynamic competitive strains enabled self-supporting Janus nanostructured films for high-performance airflow perception

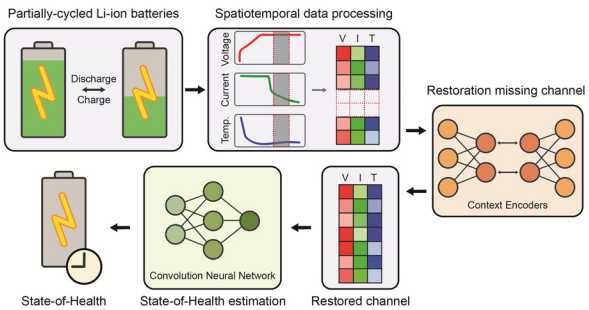
Wei Zhou, Peng Xiao,* Chang Zhang, Qing Yang and Tao Chen*



1274

Deep-learning based spatio-temporal generative model on assessing state-of-health for Li-ion batteries with partially-cycled profiles

Seojoung Park, Hyunjun Lee, Zoe K. Scott-Nevros, Dongjun Lim, Dong-Hwa Seo, Yunseok Choi,* Hankwon Lim* and Donghyuk Kim*



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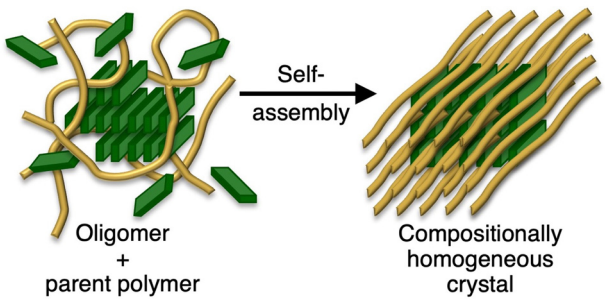
Oligoaniline-assisted self-assembly of polyaniline crystals

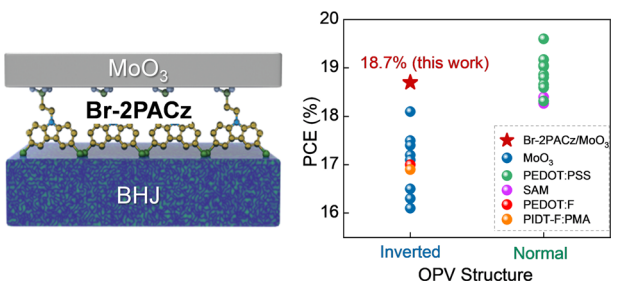
Ian M. Hill, Di Wu, Bohao Xu and Yue Wang*



1292

18.73% efficient and stable inverted organic photovoltaics featuring a hybrid hole-extraction layer

Yuanbao Lin,* Yadong Zhang, Artiom Magomedov, Eleftheria Gkogkosi, Junxiang Zhang, Xiaopeng Zheng, Abdulrahman El-Labban, Stephen Barlow, Vytautas Getautis, Ergang Wang, Leonidas Tsetseris, Seth R Marder, Iain McCulloch and Thomas D. Anthopoulos*



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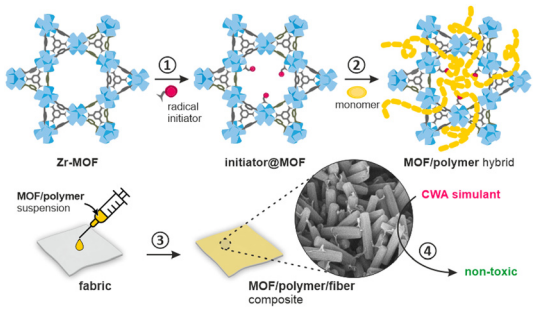
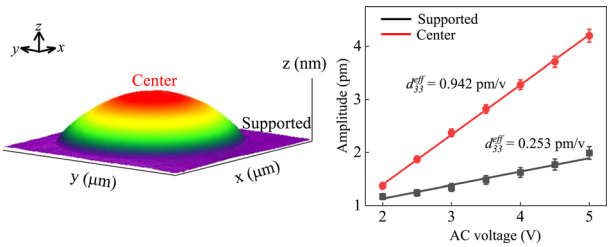


MOF/polymer hybrids through *in situ* free radical polymerization in metal-organic frameworks

Marzena Pander, Rodrigo Gil-San-Millan, Pedro Delgado, Cristina Perona-Bermejo, Urszula Kostrzewa, Karol Kaczkowski, Dominik J. Kubicki,* Jorge A. R. Navarro* and Wojciech Bury*

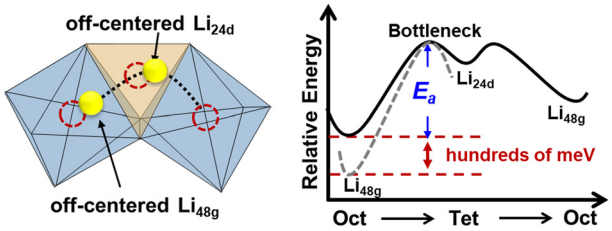
1309



Directly measuring flexoelectric coefficients μ_{11} of the van der Waals materials

Menghan Deng, Xiang Wang, Xionghu Xu, Anyang Cui,* Kai Jiang, Jinzhong Zhang, Liangqing Zhu, Liyan Shang, Yawei Li, Zhigao Hu* and Junhao Chu

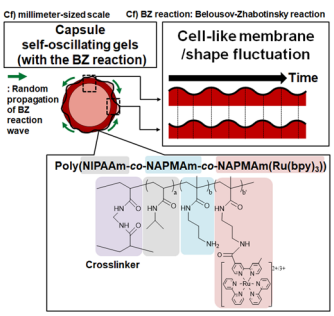
1324



Non-equilibrium kinetics for improving ionic conductivity in garnet solid electrolyte

Youwei Wang, Tiantian Wang, Xiaolin Zhao and Jianjun Liu*

1332



Capsule self-oscillating gels showing cell-like nonthermal membrane/shape fluctuations

Won Seok Lee, Takafumi Enomoto, Aya Mizutani Akimoto and Ryo Yoshida*

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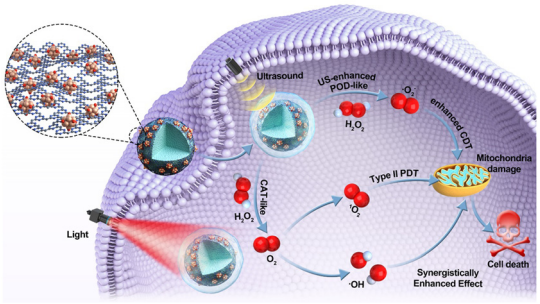
COMMUNICATIONS

1342

The direct catalytic synthesis of ultrasmall Cu_2O-coordinated carbon nitrides on ceria for multimodal antitumor therapy

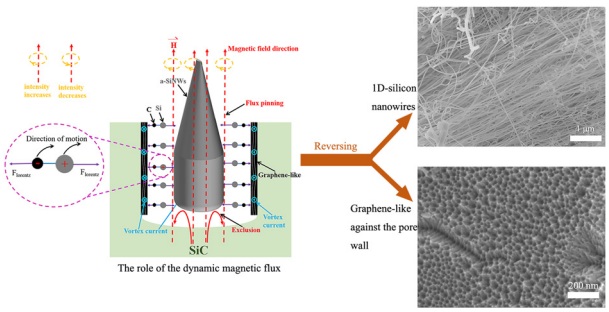
Lijian Cao, Ziyan Feng, Ruiqian Guo, Qinyu Tian, Weiwen Wang, Xiao Rong, Mi Zhou, Chong Cheng,* Tian Ma* and Dawei Deng*



1354

Reversing silicon carbide into 1D silicon nanowires and graphene-like structures using a dynamic magnetic flux template

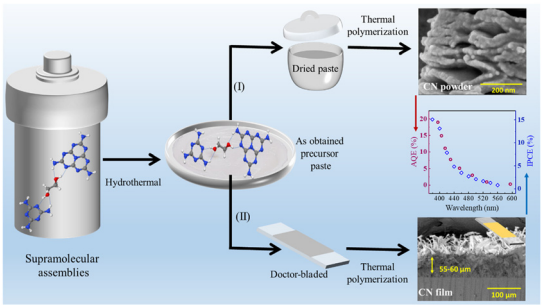
Wenting Zhou, Qiang Liu and Qingsong Huang*



1363

Developing extended visible light responsive polymeric carbon nitrides for photocatalytic and photoelectrocatalytic applications

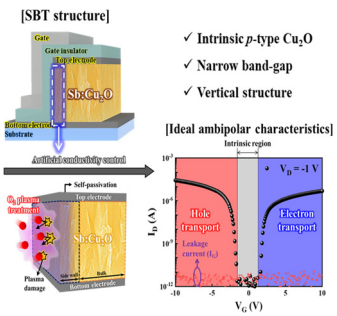
Sanjit Mondal, Gabriel Mark, Liel Abisdris, Junyi Li, Tirza Shmila, Jonathan Tzadikov, Michael Volokh, Lidan Xing and Menny Shalom*



1373

Ambipolar operation of progressively designed symmetric bidirectional transistors fabricated using single-channel vertical transistor and electrochemically prepared copper oxide

Sung Hyeon Jung, Ji Sook Yang and Hyung Koun Cho*



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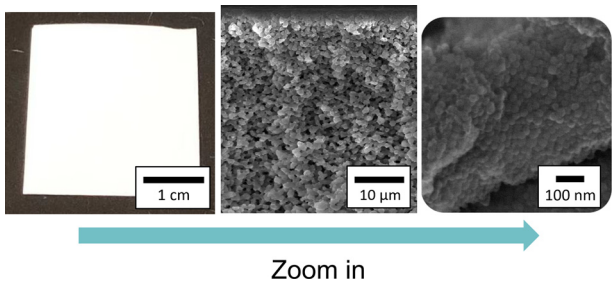
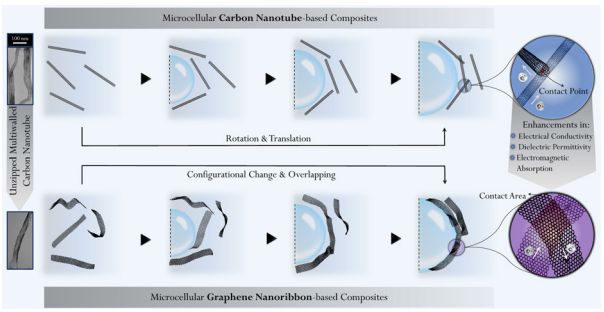


Bicontinuous interfacially jammed emulsion gels with nearly uniform sub-micrometer domains *via* regulated co-solvent removal

Tiancheng Wang, Robert A. Riggleman, Daeyeon Lee* and Kathleen J. Stebe*

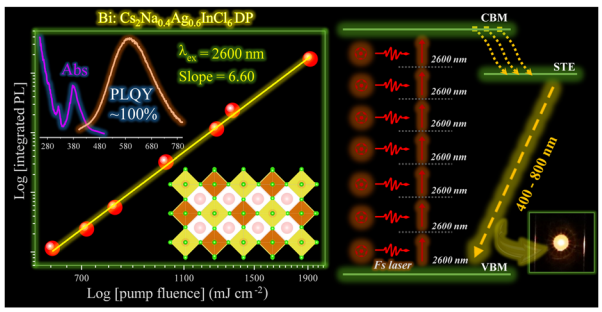
1392



Enhanced electrical properties of microcellular polymer nanocomposites *via* nanocarbon geometrical alteration: a comparison of graphene nanoribbons and their parent multiwalled carbon nanotubes

Meysam Salari, Saeed Habibpour, Mahdi Hamidinejad,* Sara Mohseni Taromsari, Hani E. Naguib, Aiping Yu and Chul B. Park*

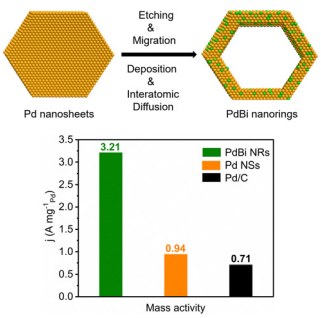
1406



Seven-photon absorption from Na^{+}/Bi^{3+}-alloyed $Cs_2AgInCl_6$ perovskites

Shiling Jin, Renfu Li, Jiwen Zhu, Tao Pang, Tianmin Wu,* Hongbing Zhan, Yuanhui Zheng, Feng Huang, Xueyuan Chen* and Daqin Chen*

1416



A universal synthesis of ultrathin Pd-based nanorings for efficient ethanol electrooxidation

Yu Wang, Mengfan Li, Zhilong Yang, Wenchuan Lai, Jingjie Ge, Minhua Shao, Yu Xiang,* Xuli Chen* and Hongwen Huang*

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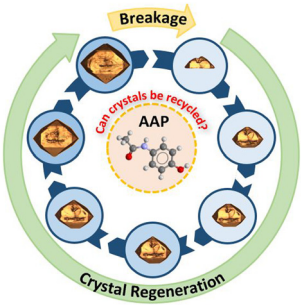
COMMUNICATIONS

1425

Crystal regeneration – a unique growth phenomenon observed in organic crystals post breakage

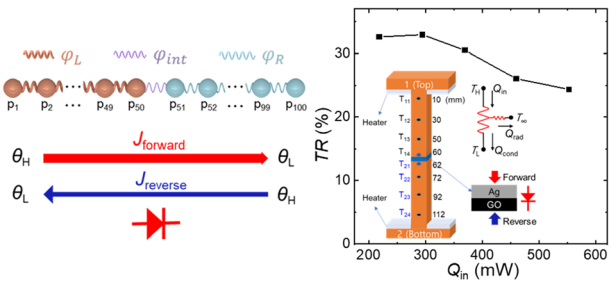
Isha Bade, Vivek Verma, Ian Rosbottom and Jerry Y. Y. Heng*



1431

Solid-state thermal rectification of bilayers by asymmetric elastic modulus

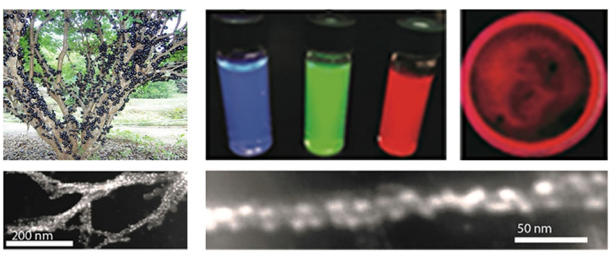
Junbyeong Lee, Seokjae Cha, Byung Ho Lee, Agha Aamir Jan, Rijin Kizhakkekara, Jaehun Yang, Moon Ki Kim* and Seunghyun Baik*



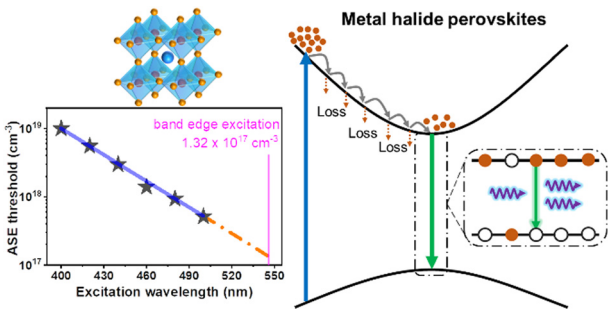
1440

Full-colour Jabuticaba-like nanostructures *via* the multiplex and orthogonal self-assembly of protein-conjugated quantum dots with engineered biofilms

Zhengtao Deng,* Allen Y. Chen, Bijan Zakeri, Chao Zhong and Timothy K. Lu*



1446

From optical pumping to electrical pumping: the threshold overestimation in metal halide perovskites

Jiajun Qin, Yang Tang, Jia Zhang, Tangyao Shen, Max Karlsson, Tiankai Zhang, Weidong Cai, Lei Shi,* Wei-Xin Ni and Feng Gao*