

# Materials Horizons

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Building and designing systems from the molecular level

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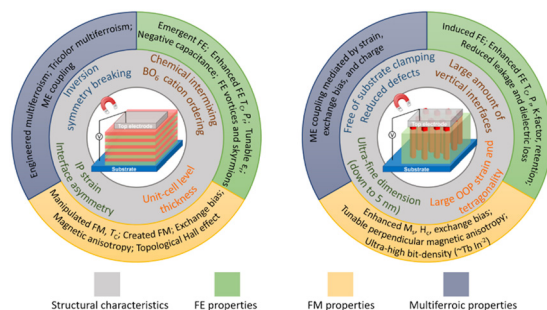


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## Interface-related phenomena in epitaxial complex oxide ferroics across different thin film platforms: opportunities and challenges

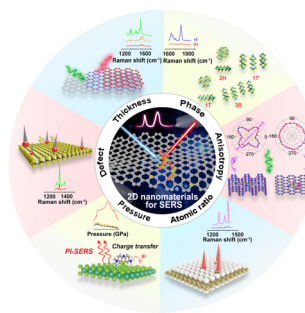
Judith L. MacManus-Driscoll,\* Rui Wu\* and Weiwei Li\*



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## Spotting the driving forces for SERS of two-dimensional nanomaterials

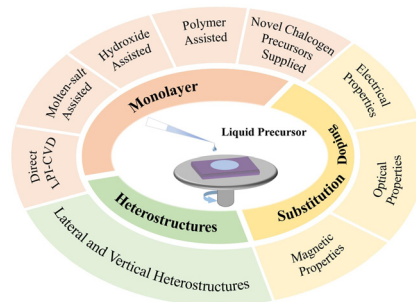
Jing Jin, Zhinan Guo,\* Dianyuan Fan and Bing Zhao\*



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

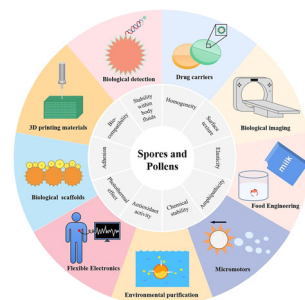
Huiyan Guan, Bei Zhao,\* Weiwei Zhao and Zhenhua Ni\*



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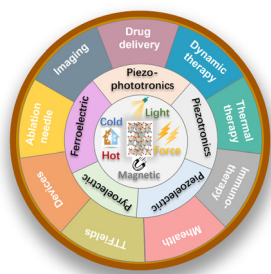
## Extraordinary microcarriers derived from spores and pollens

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



## REVIEWS

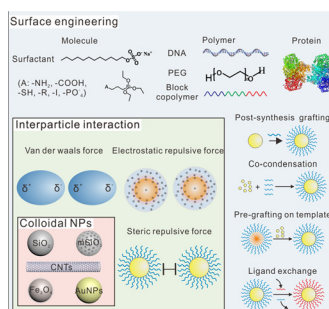
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### The fundamentals and applications of piezoelectric materials for tumor therapy: recent advances and outlook

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

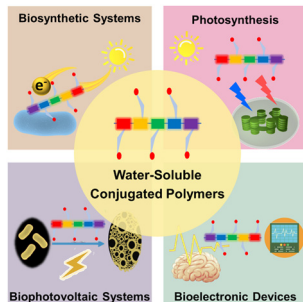
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### Surface engineering of colloidal nanoparticles

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

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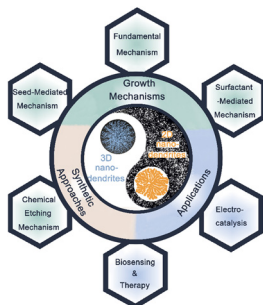


### Water-soluble conjugated polymers for bioelectronic systems

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

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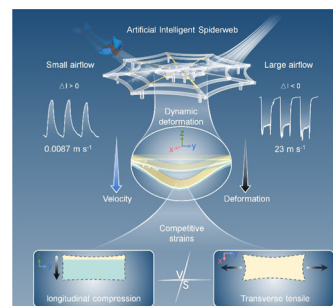
Ke Guo, Dongdong Xu,\* Lin Xu,\* Yafei Li and Yawen Tang



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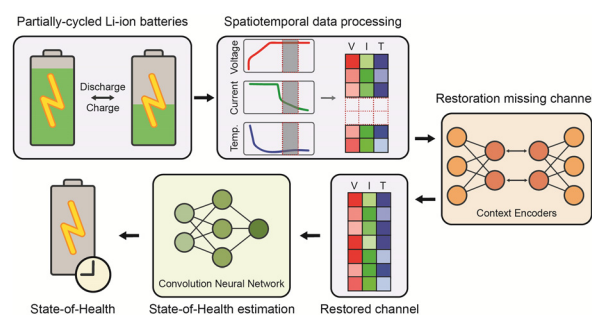
Wei Zhou, Peng Xiao,\* Chang Zhang, Qing Yang and Tao Chen\*



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

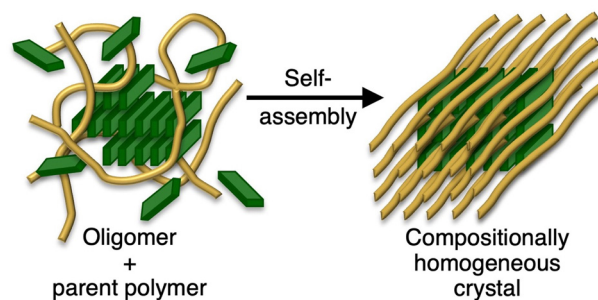
Seojoung Park, Hyunjun Lee, Zoe K. Scott-Nevros, Dongjun Lim, Dong-Hwa Seo, Yunseok Choi,\* Hankwon Lim\* and Donghyuk Kim\*



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### Oligoaniline-assisted self-assembly of polyaniline crystals

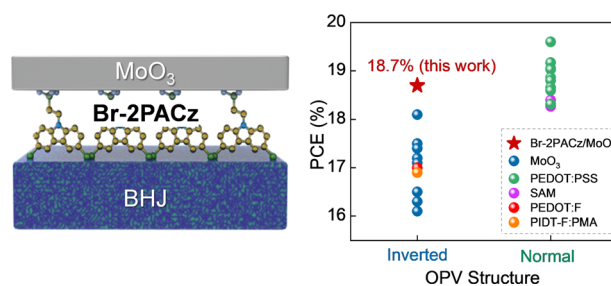
Ian M. Hill, Di Wu, Bohao Xu and Yue Wang\*



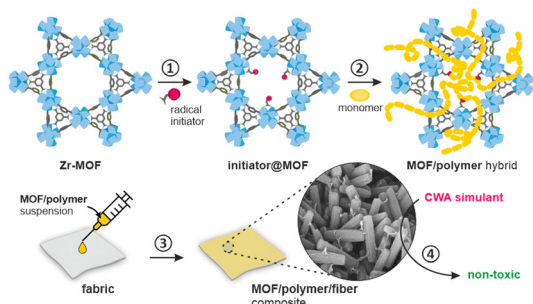
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### 18.73% efficient and stable inverted organic photovoltaics featuring a hybrid hole-extraction layer

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\*



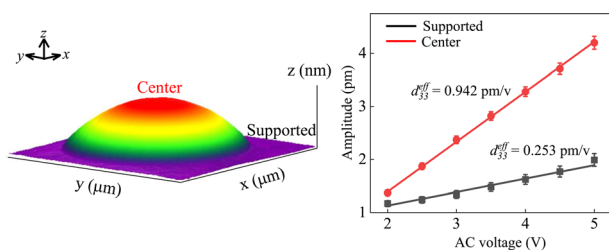
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### MOF/polymer hybrids through *in situ* free radical polymerization in metal-organic frameworks

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\*

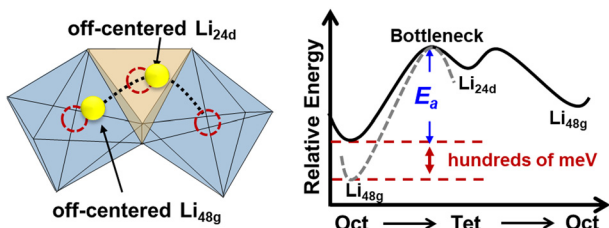
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### Directly measuring flexoelectric coefficients $\mu_{11}$ of the van der Waals materials

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

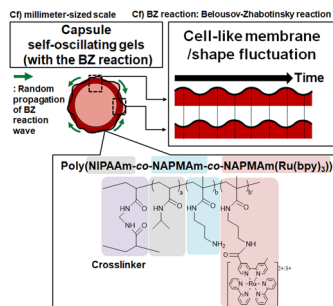
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### Non-equilibrium kinetics for improving ionic conductivity in garnet solid electrolyte

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

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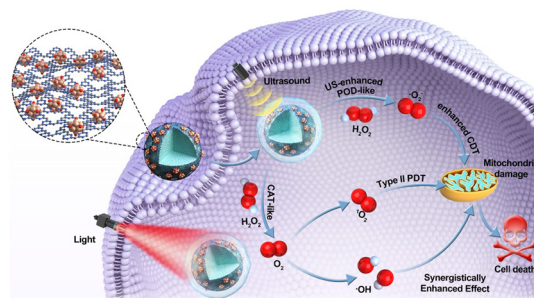
Won Seok Lee, Takafumi Enomoto, Aya Mizutani Akimoto and Ryo Yoshida\*



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### The direct catalytic synthesis of ultrasmall $\text{Cu}_2\text{O}$ -coordinated carbon nitrides on ceria for multimodal antitumor therapy

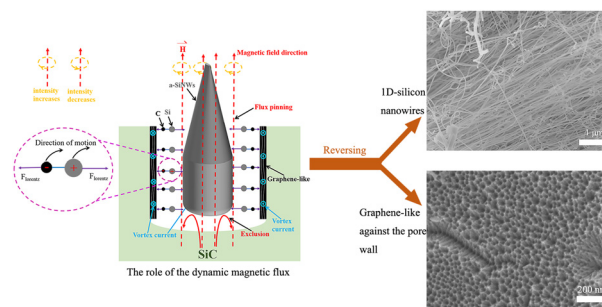
Lijian Cao, Ziyang Feng, Ruiqian Guo, Qinyu Tian, Weiwen Wang, Xiao Rong, Mi Zhou, Chong Cheng,\* Tian Ma\* and Dawei Deng\*



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

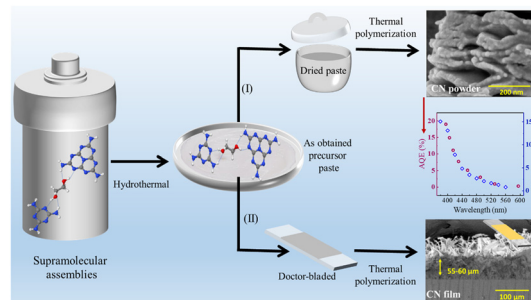
Wenting Zhou, Qiang Liu and Qingsong Huang\*



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

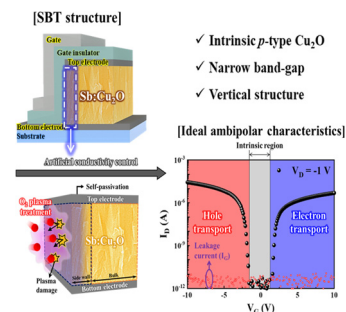
Sanjit Mondal, Gabriel Mark, Liel Abisdris, Junyi Li, Tirza Shmila, Jonathan Tzadikoy, Michael Volokh, Lidan Xing and Menny Shalom\*



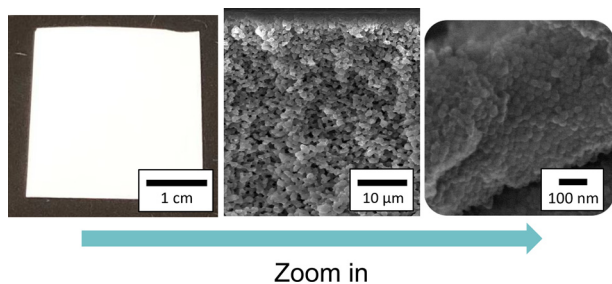
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### Ambipolar operation of progressively designed symmetric bidirectional transistors fabricated using single-channel vertical transistor and electrochemically prepared copper oxide

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



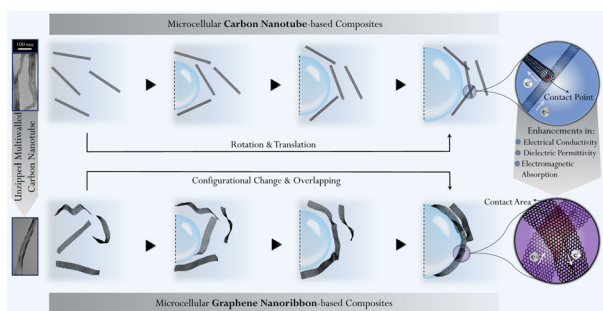
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### Bicontinuous interfacially jammed emulsion gels with nearly uniform sub-micrometer domains *via* regulated co-solvent removal

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

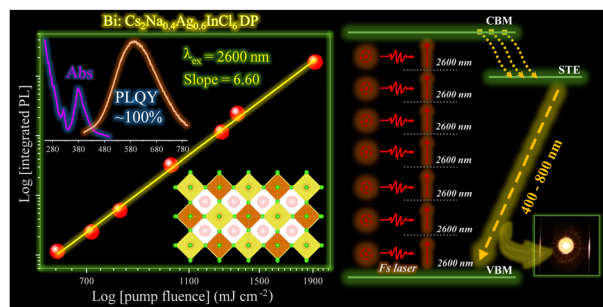
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### Enhanced electrical properties of microcellular polymer nanocomposites *via* nanocarbon geometrical alteration: a comparison of graphene nanoribbons and their parent multiwalled carbon nanotubes

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

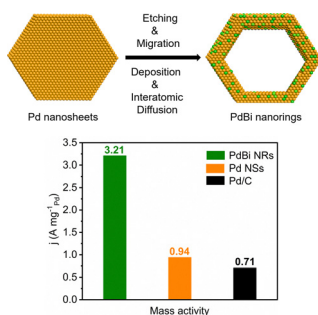
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### Seven-photon absorption from $\text{Na}^+/\text{Bi}^{3+}$ -alloyed $\text{Cs}_2\text{AgInCl}_6$ perovskites

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

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

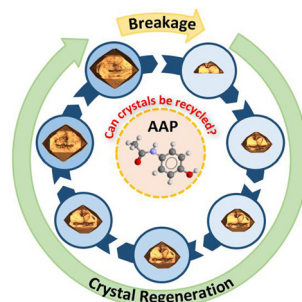
Yu Wang, Mengfan Li, Zhilong Yang, Wenchuan Lai, Jingjie Ge, Minhua Shao, Yu Xiang,\* Xuli Chen\* and Hongwen Huang\*



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

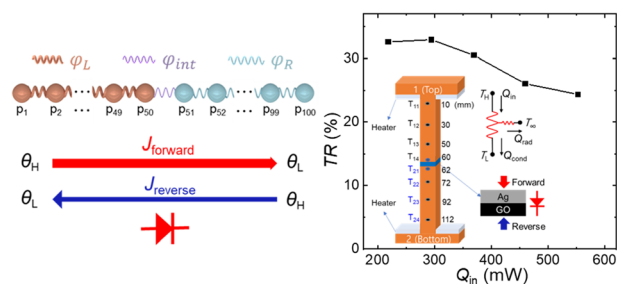
Isha Bade, Vivek Verma, Ian Rosbottom and Jerry Y. Y. Heng\*



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### Solid-state thermal rectification of bilayers by asymmetric elastic modulus

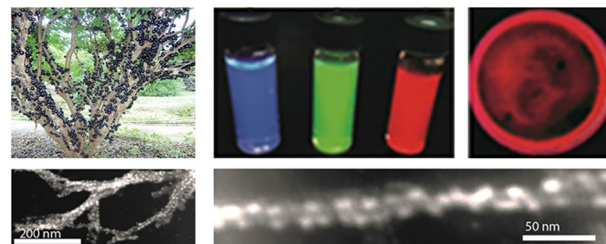
Junbyeong Lee, Seokjae Cha, Byung Ho Lee, Agha Aamir Jan, Rijin Kizhakkekara, Jaehun Yang, Moon Ki Kim\* and Seunghyun Baik\*



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### 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\*



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### 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\*

