

# Materials Advances

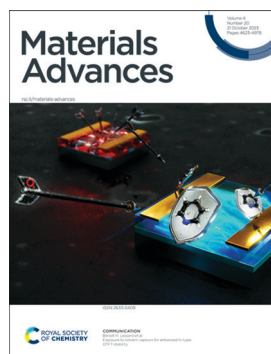
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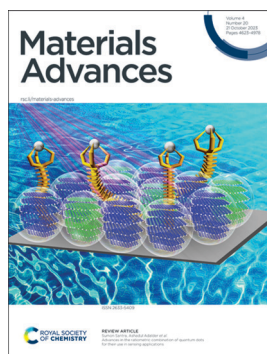
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ISSN 2633-5409 CODEN MAADC9 4(20) 4623-4978 (2023)



### Cover

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### Inside cover

See Sumon Santra, Ashadul Adalder *et al.*, pp. 4646–4664. Image reproduced by permission of Ashadul Adalder from *Mater. Adv.*, 2023, 4, 4646.

## EDITORIAL

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### Announcing the *Materials Advances* Paper Prize

Hannah E. Kerr,\* Jeremy P. Allen, Anders Hagfeldt, Jeroen J. L. M. Cornelissen and Natalie Stingelin

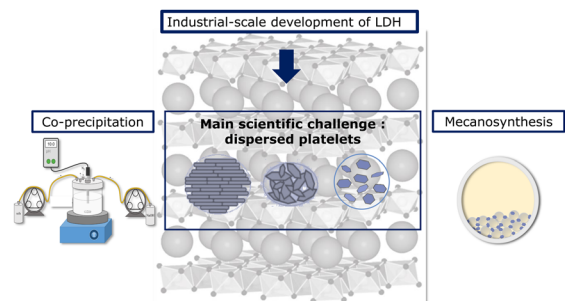


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### Layered double hydroxides: where should research stress on for massive scaling up?

Claire Dazon,\* Christine Taviot-Guého and Vanessa Prévot



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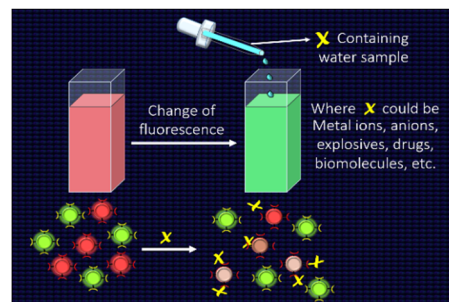


## REVIEWS

4646

**Advances in the ratiometric combination of quantum dots for their use in sensing applications**

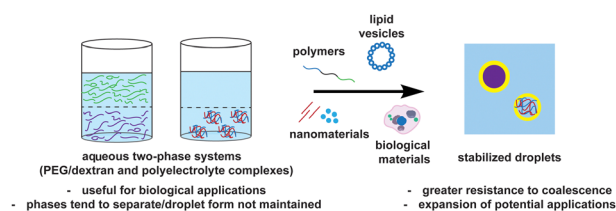
Sumon Santra,\* Sourav Dutta and Ashadul Adalder\*



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**Interfacial stabilization of aqueous two-phase systems: a review**

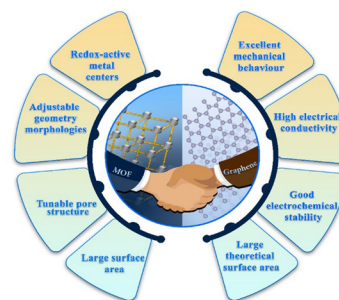
Caitlyn Fick, Zara Khan and Samanvaya Srivastava\*



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**Metal–organic framework and graphene composites: advanced materials for electrochemical supercapacitor applications**

Debal Kanti Singha, Rupali Ipsita Mohanty, Piyali Bhanja and Bikash Kumar Jena\*

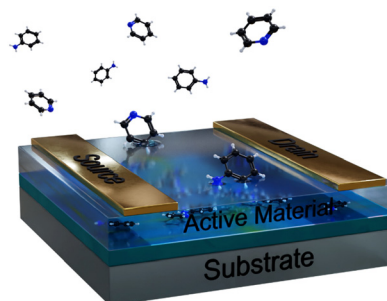


## COMMUNICATIONS

4707

**Exposure to solvent vapours for enhanced N-type OTFT stability**

Samantha Brixi, Halynne R. Lamontagne, Benjamin King, Adam J. Shuhendler and Benoît H. Lessard\*

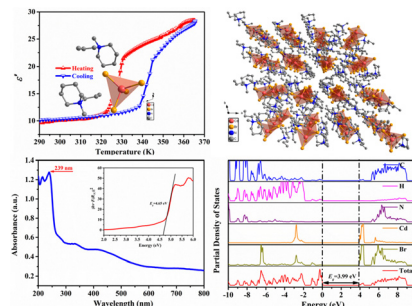




4755

### Organic–inorganic hybrid multifunctional materials with high- $T_c$ reversible phase transition and wide bandgap properties

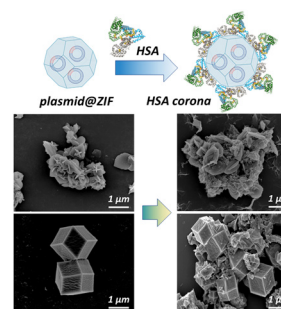
Yu-Xin Tan, Ting-Ting Ying,\* Xiao-Wei Fan, Yan-Le Huang, Ming-Yang Wan, Qiao-Lin Li, Fang-Xin Wang and Meng-Na Wang



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### Impact of nucleic acid encapsulated MOF crystal phase on protein corona formation

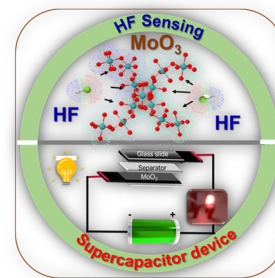
Shakil Ahmed Polash, Suneela Pyreddy, Amanda N Abraham, Sanje Mahasivam, Vipul Bansal, Linda Varadi, Gary Bryant and Ravi Shukla\*



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### Fluorane sensitive supercapacitive microcrystalline MoO<sub>3</sub>: dual application in energy storage and HF detection

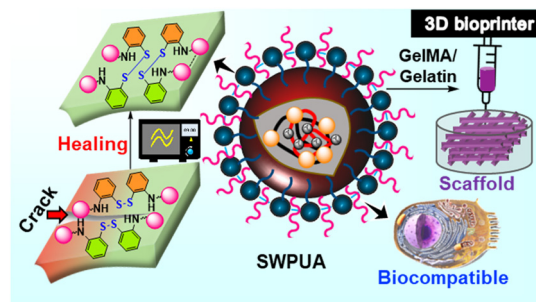
Love Bansal, Tanushree Ghosh, Suchita Kandpal, Chanchal Rani, Bhumika Sahu, Deb Kumar Rath, Christoph Wesemann, Sandeep Chhoker, Nadja C. Bigall\* and Rajesh Kumar\*



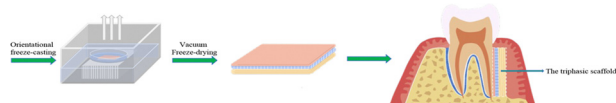
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### A dynamic hard domain-induced self-healable waterborne poly(urethane/acrylic) hybrid dispersion for 3D printable biomedical scaffolds

Samiran Morang, Jay Hind Rajput, Anwasha Mukherjee, Atharva Poundarik, Bodhisatwa Das and Niranjana Karak\*



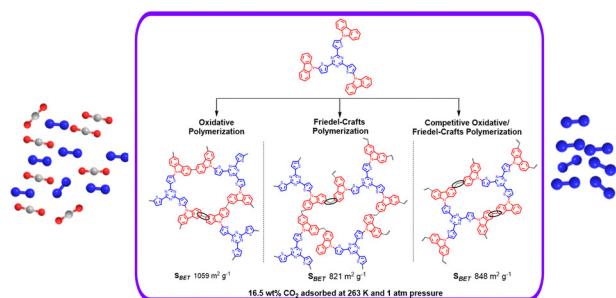
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### Growth factor-encapsulated triphasic scaffolds of electrospun polylactic acid–polycaprolactone (PLA–PCL) nanofibrous mats combined with a directionally freeze-dried chitosan hydrogel for periodontal tissue regeneration

Weihan Hua, Jie Xiang, Yeke Wu, Wei Yang\* and Lixing Zhao\*

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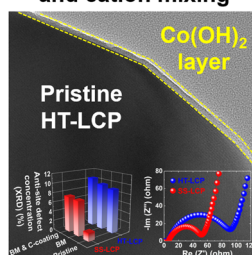


### Thienyltriazine-based porous organic polymers with nitrogen rich moieties: synthesis and gas selectivity study

Neha Rani Kumar,\* Prasenjit Das, Abhijeet R. Agrawal, Sanjay Kumar Mandal\* and Sanjio S. Zade\*

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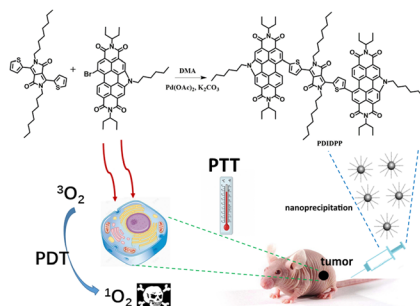
### Surface passivation and cation mixing



### Surface and bulk defect formation during hydrothermal synthesis of LiCoPO<sub>4</sub> crystals and their electrochemical implications

Moohyun Woo, Jinhyuk Lee and George P. Demopoulos\*

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### Synthesis of a new photosensitizer for photodynamic and photothermal synergistic cancer therapy

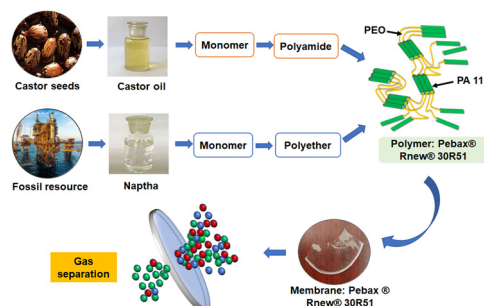
Jun Deng,\* Xiaohua Xia, Hua Yuan, Zhiqiang Chen, Xin Jiang, Dengfeng Zou\* and Qiang Wang\*



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## Synthesis and characterization of a high-performance bio-based Pebax membrane for gas separation applications

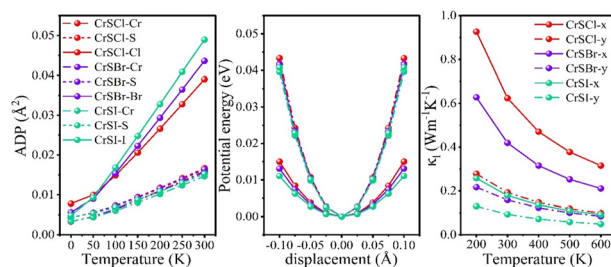
R. Surya Murali,\* Amit Jha, Aarti, Swapnil Divekar and Soumen Dasgupta



4852

## Ultralow thermal conductivity and anharmonic rattling in two-dimensional CrSX (X = Cl, Br, I) monolayers

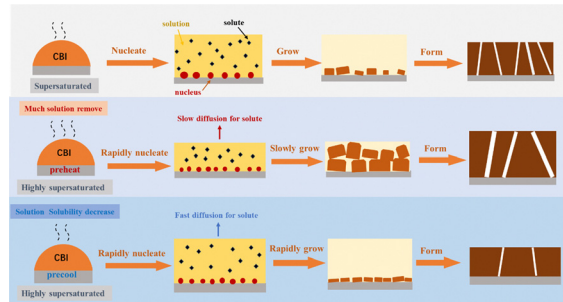
Xiaowei Xuan, Zhaoyu Yang, Rui Du, Yimeng Zhao, Yuli Yan, Chang Liu, Hang Li and Guangbiao Zhang\*



4860

## Cold- and hot-casting to regulate the morphology and charge carrier dynamics of CsBi<sub>3</sub>I<sub>10</sub> towards efficient and stable thin-film solar cells

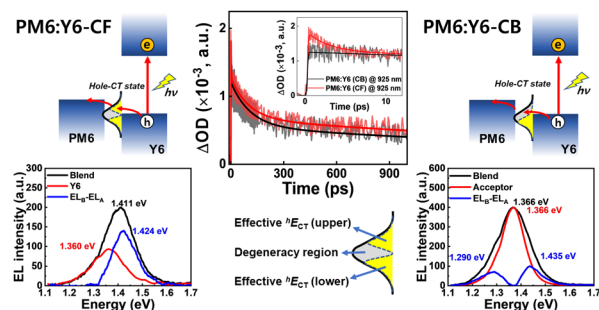
Xuejiao Wu, Peiyao Dong, Li Yang\* and Jinbao Zhang\*



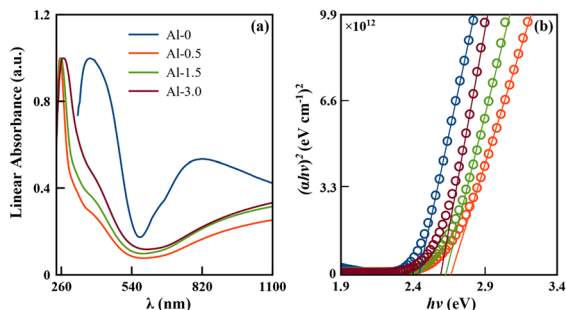
4869

## Impact of solvent-induced morphological changes on the hole transfer dynamics during a charge separation process

Dongchan Lee, Chang-Mok Oh, Jiho Ryu, Sung-Yeon Jang, In-Wook Hwang\* and Shinuk Cho\*



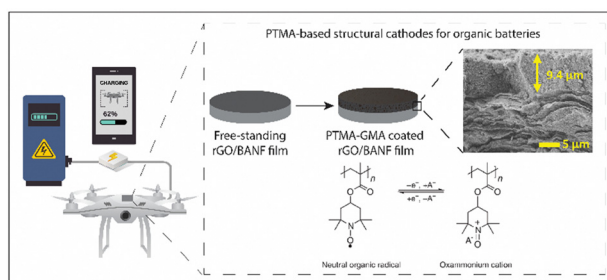
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### Layer hybridized exciton–plasmon resonances for enhanced dispersion modes in CuS:Al nanostructured films

Harkawal Singh, Sandeep Kumar, Thakur Sudesh Kumar Raunija and Praveen Kumar Sharma\*

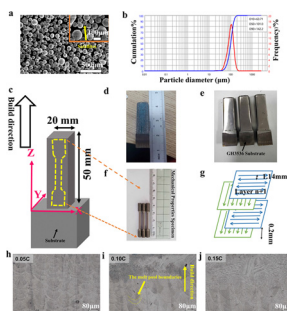
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### Structural organic battery cathodes comprised of organic redox active polymers, reduced graphene oxide, and aramid nanofibers

Suyash S. Oka, Ratul Mitra Thakur, Alexandra D. Easley, Micah J. Green and Jodie L. Lutkenhaus\*

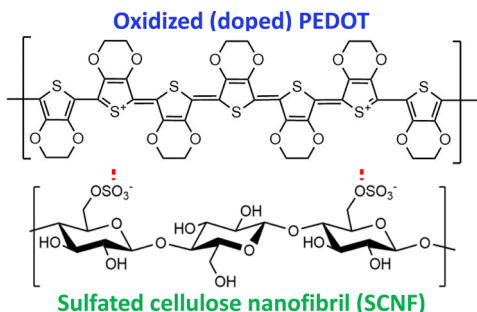
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### Influence of carbon additions on microstructures and mechanical properties in additive manufactured superalloys

Mingjun Xie, Yan Zhao,\* Jianjun Guan, Yanhong Yang\* and Yuting Fu

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### *In situ* polymerized PEDOT dispersions with sulfated cellulose nanofibrils for 1D and 2D conductors

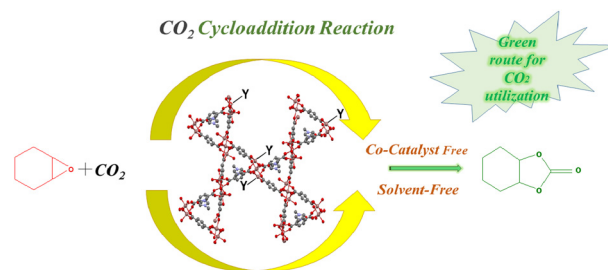
Benjamin Pingrey and You-Lo Hsieh\*



4921

### Dicyano-functionalized indium framework as a heterogeneous catalyst for CO<sub>2</sub> fixation in the absence of solvent and co-catalyst

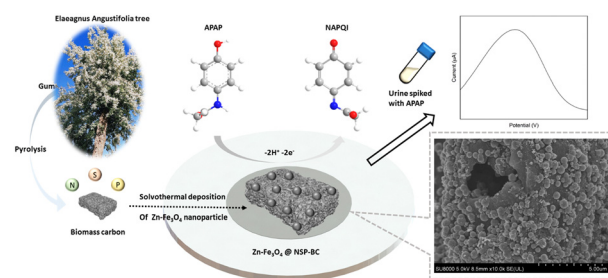
Naghmeh Bayati and Saeed Dehghanpour\*



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### A Zn-doped Fe<sub>3</sub>O<sub>4</sub> nanoparticle@N, S and P doped Eleaegnus angustifolia gum derived carbon hybrid electrocatalyst: synthesis, characterization and electrochemical sensing of acetaminophen

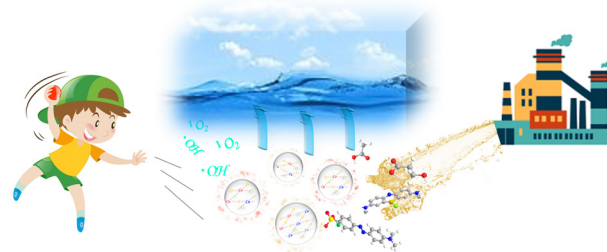
Xamxikamar Mamat, Zehong Gao and Longyi Chen\*



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### Enhanced catalytic activity of ZnO–CuO–Co<sub>3</sub>O<sub>4</sub> composites achieved using a mechanochemical method for effective Fenton-like dye removal: the generation and catalytic mechanism of various superficial active sites

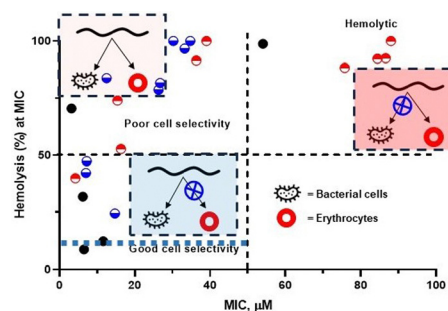
Xueping Li, Kangkang Miao, Sifan Guo, Nan Wang, Qian Zhuang, Huaming Qian, Xiaolin Luo\* and Guodong Feng\*



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### Synthesis, characterization and cell selectivity of poly(quaternary ammonium chlorides): effect of the degree of quaternization and copolymer composition

Wendy Rusli, Periyah Mercy Halleluyah, Loh Xian Jun,\* Rajamani Lakshminarayanan\* and Anbanandam Parthiban\*



## PAPERS

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**A smart nanopaper sensor for optical diagnosis of *Helicobacter pylori* infection**

Zeinab Asghari Adib, Amir Reza Sharifi, Mohammad Ali Kiani, Hossein Yousefi, Daniel Horák, Uliana Kostiv, Ali Nabavi-Rad, Abbas Yadegar, Mohammad Yaghoubi-Avini and Hamed Golmohammadi\*

## CORRECTION

4975

**Correction: Rapid single step atmospheric pressure plasma jet deposition of a SERS active surface**

Oliver S. J. Hagger, M. Emre Sener, Imran Khan, Francis Lockwood Estrin, Stefanos Agrotis, Albertus D. Handoko, Ivan P. Parkin and Daren J. Caruana\*

