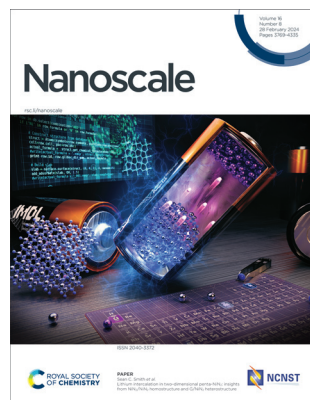


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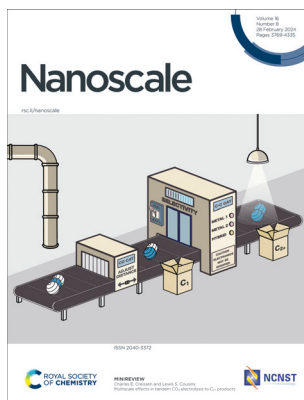
ISSN 2040-3372 CODEN NANOHL 16(8) 3769–4335 (2024)



### Cover

See Sean C. Smith *et al.*, pp. 3985–3993.

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### Inside cover

See Charles E. Creissen and Lewis S. Cousins pp. 3915–3925.

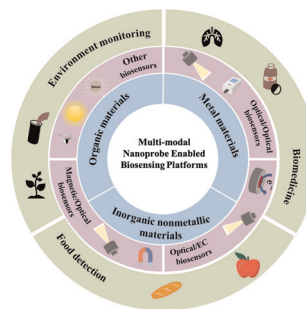
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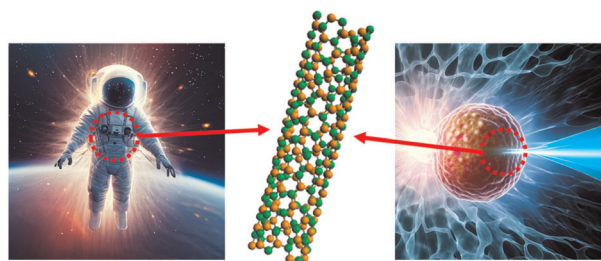
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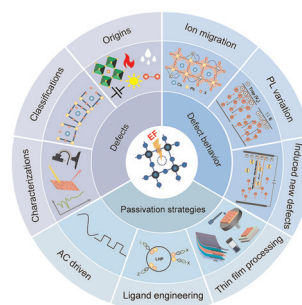
**Fundamental questions  
Elemental answers**

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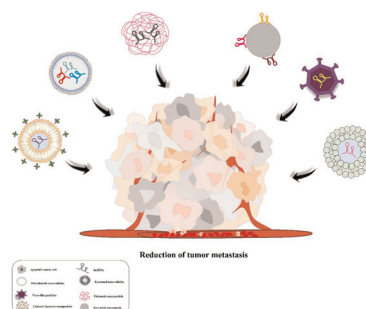
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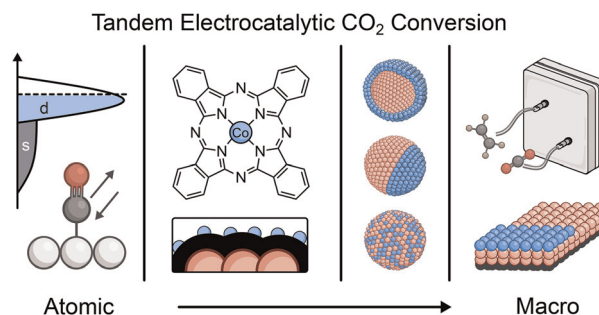


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### Multiscale effects in tandem CO<sub>2</sub> electrolysis to C<sub>2+</sub> products

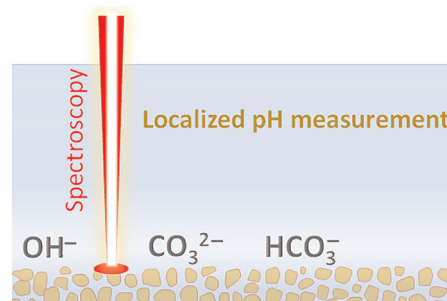
Lewis S. Cousins and Charles E. Creissen\*



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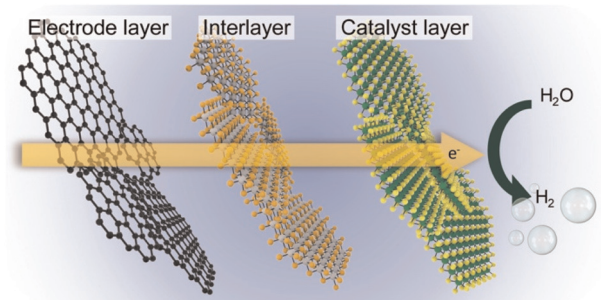
### Determination of local pH in CO<sub>2</sub> electroreduction

Tiantian Wu, Hangyu Bu, Shuaikang Tao and Ming Ma\*



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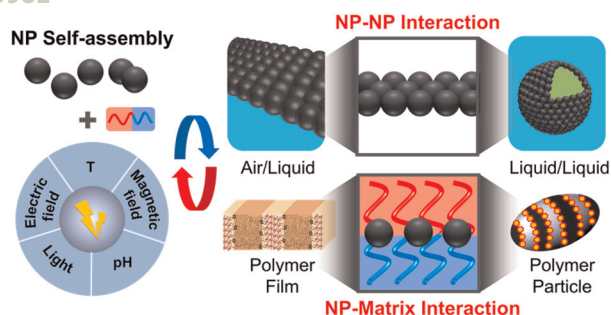
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### Two-dimensional materials as catalysts, interfaces, and electrodes for an efficient hydrogen evolution reaction

Yun Seong Cho and Joohoon Kang\*

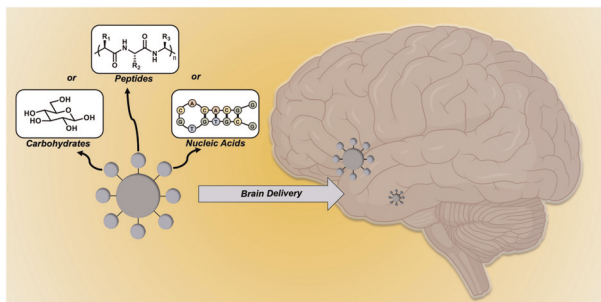
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### Stimuli-responsive nanoparticle self-assembly at complex fluid interfaces: a new insight into dynamic surface chemistry

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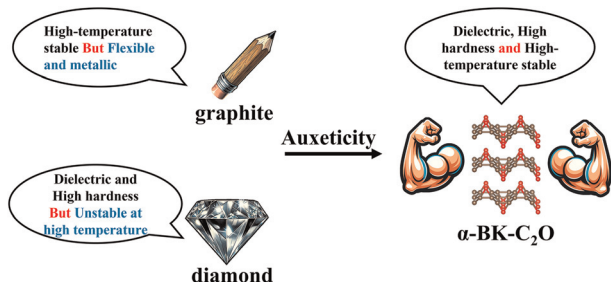


### Biomacromolecule-tagged nanoscale constructs for crossing the blood–brain barrier

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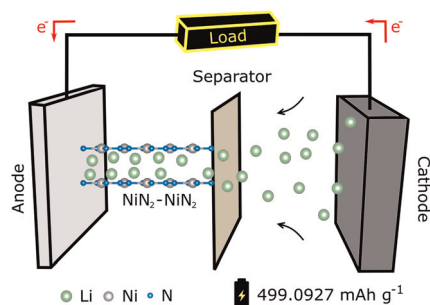


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### Lithium intercalation in two-dimensional penta-NiN<sub>2</sub>: insights from NiN<sub>2</sub>/NiN<sub>2</sub> homostructure and G/NiN<sub>2</sub> heterostructure

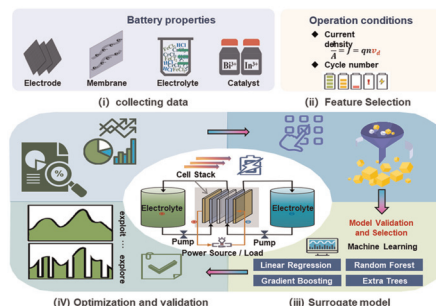
Mohsen Mahmoudi, Dirk König, Xin Tan\* and Sean C. Smith\*



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### Machine learning-enabled performance prediction and optimization for iron–chromium redox flow batteries

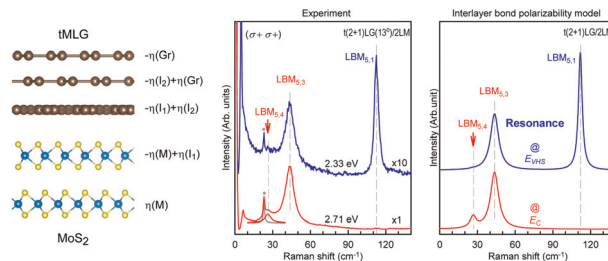
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### Interlayer bond polarizability model for interlayer phonons in van der Waals heterostructures

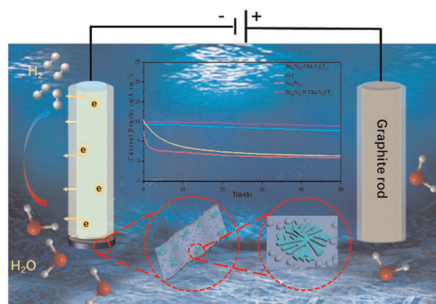
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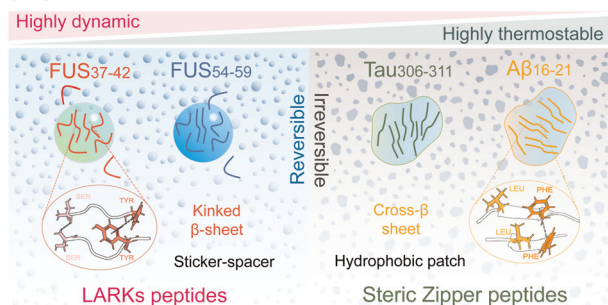
### In situ growth engineering of ultrathin dendritic PdNi nanosheets on nitrogen-doped V<sub>2</sub>CT<sub>x</sub> MXenes for efficient hydrogen evolution

Chaohai Sun, Yong Tan, Yong Wen, Yang Yang, Fang Guo, Hongyan Huang, Wanli Ma\* and Si Cheng\*



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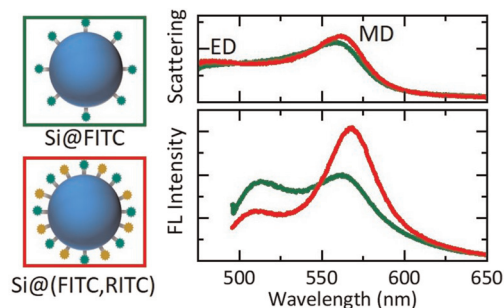
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### Elucidating the reversible and irreversible self-assembly mechanisms of low-complexity aromatic-rich kinked peptides and steric zipper peptides

Zenghui Lao, Yiming Tang, Xuwei Dong, Yuan Tan, Xuhua Li, Xianshi Liu, Le Li, Cong Guo\* and Guanghong Wei\*

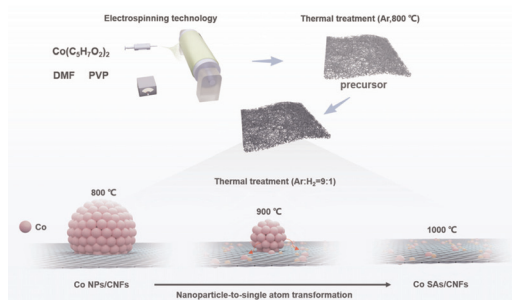
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### Photoluminescence from FRET pairs coupled with Mie-resonant silicon nanospheres

Keisuke Ozawa, Masato Adachi, Hiroshi Sugimoto\* and Minoru Fujii

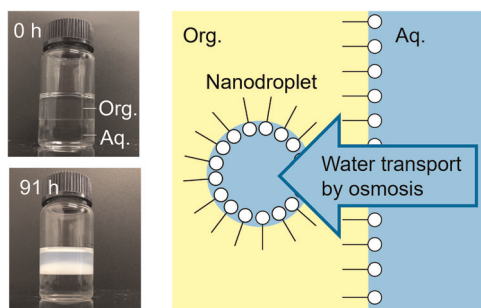
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### Emerging electrospinning platform toward nanoparticle to single atom transformation for steering selectivity in ammonia synthesis

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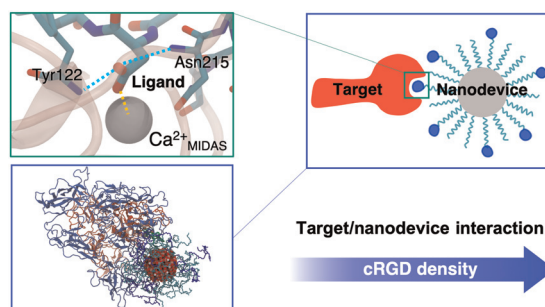


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### Mechanism of RGD-conjugated nanodevice binding to its target protein integrin $\alpha_v\beta_3$ by atomistic molecular dynamics and machine learning

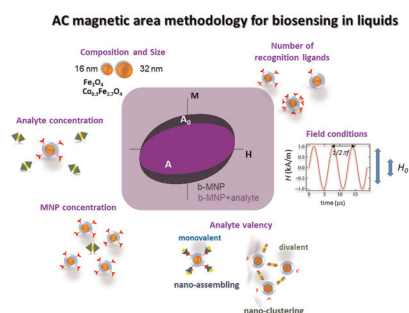
Giulia Frigerio, Edoardo Donadoni, Paulo Siani, Jacopo Vertemara, Stefano Motta, Laura Bonati, Luca De Gioia and Cristiana Di Valentin\*



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### Multiparametric modulation of magnetic transduction for biomolecular sensing in liquids

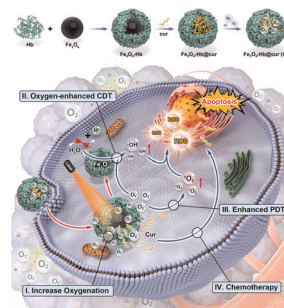
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### Oxygen self-supplying small size magnetic nanoenzymes for synergistic photodynamic and catalytic therapy of breast cancer

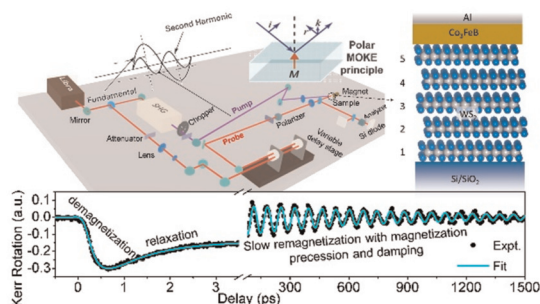
Xinyi Cai, Tiantian Xu, Rui Ding, Dou Zhang, Guiquan Chen, Wenchang Zhao, Jiajie Hou, Hong Pan,\* Qian Zhang\* and Ting Yin\*



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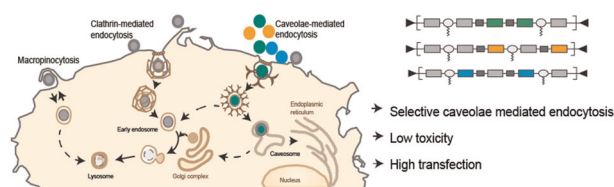
### Manipulating ultrafast magnetization dynamics of ferromagnets using the odd–even layer dependence of two-dimensional transition metal di-chalcogenides

Soma Dutta, Sajid Husain,\* Prabhat Kumar, Nanhe Kumar Gupta, Sujeet Chaudhary, Peter Svedlindh and Anjan Barman\*



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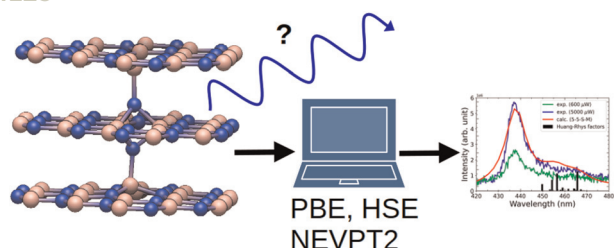
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### Sugar alcohol-modified polyester nanoparticles for gene delivery *via* selective caveolae-mediated endocytosis

Betsy Reshma G, Chirag Miglani, Ashish Pal and Munia Ganguli\*

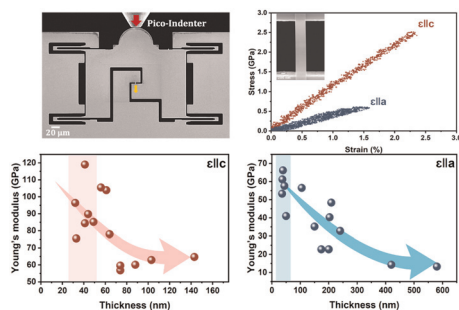
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### First-principles theory of the nitrogen interstitial in hBN: a plausible model for the blue emitter

Ádám Ganyecz, Rohit Babar, Zsolt Benedek, Igor Aharonovich, Gergely Barcza\* and Viktor Ivády\*

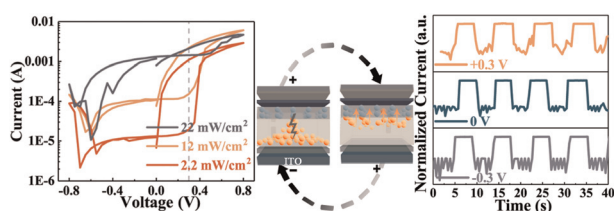
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### Anisotropic mechanical properties of $\alpha$ -MoO<sub>3</sub> nanosheets

Congying Wang, Xuwei Cui, Shijun Wang, Wenlong Dong, Hai Hu, Xiaoyong Cai, Chao Jiang, Zhong Zhang\* and Luqi Liu\*

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### Multifunctional two-dimensional perovskite based solar cells for photodetectors and resistive switching

Qing Dai, Zhenwang Luo, Guohua Ma, Yuchen Miao, Xu Wang, Zhenfu Zhao, Feiyu Zhao, Fei Zheng, Liqiang Zhu and Ziyang Hu\*



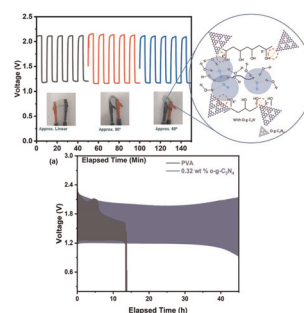


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### Flexible solid-state Zn–air battery based on polymer-oxygen-functionalized g-C<sub>3</sub>N<sub>4</sub> composite membrane

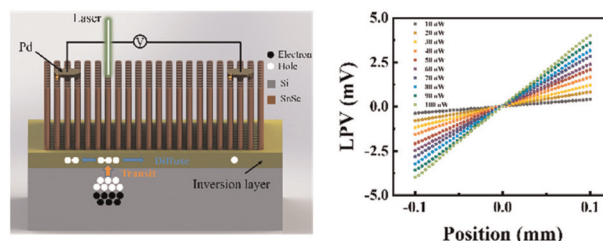
Arkaj Singh, Ravinder Sharma and Aditi Halder\*



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### A high-sensitivity SnSe/Si heterojunction position-sensitive detector for ultra-low power detection

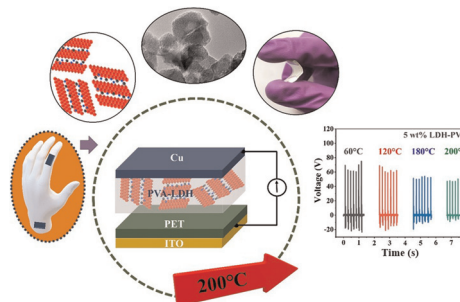
Bing Hu, Yunjie Liu, Bo Zhang, Fuhai Guo, Mingcong Zhang, Weizhuo Yu, Siqi Li and Lanzhong Hao\*



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### Unveiling a robust and high-temperature-stable two-dimensional ZnAl layered double hydroxide nanosheet based flexible triboelectric nanogenerator

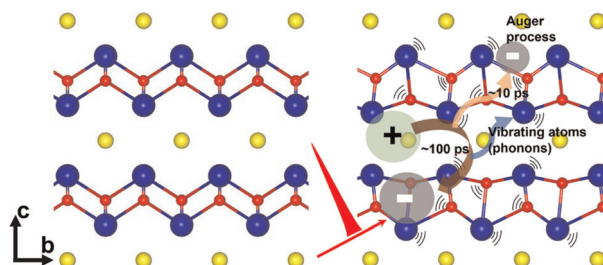
Ritu, Simadri Badatya, Manoj Kumar Patel\* and Manoj Kumar Gupta\*



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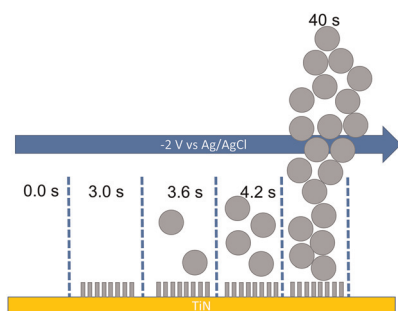
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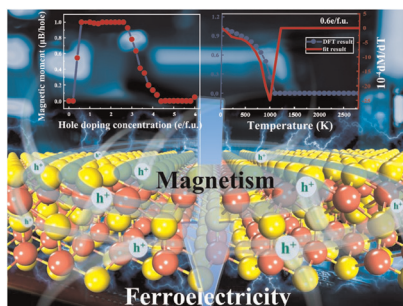
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### Film before aggregates: an *operando* GISAXS study on electrochemically assisted surfactant assembly

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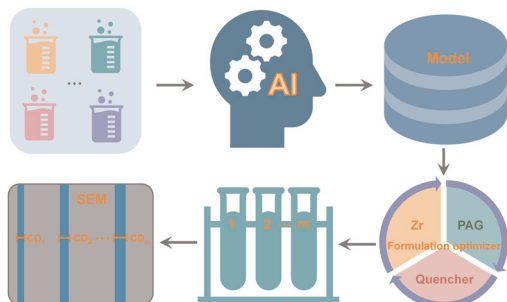
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### Realizing multiferroics in $\alpha$ -Ga<sub>2</sub>S<sub>3</sub> via hole doping: a first-principles study

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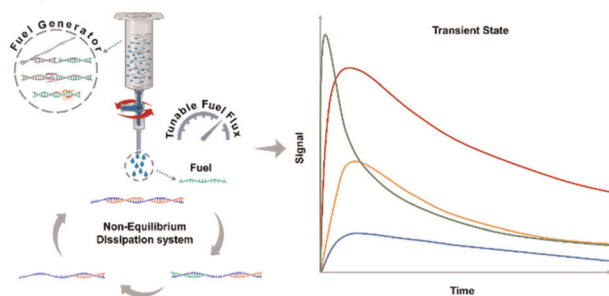
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### Machine learning in electron beam lithography to boost photoresist formulation design for high-resolution patterning

Rongbo Zhao, Xiaolin Wang, Hong Xu,\* Yayi Wei and Xiangming He\*

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### A non-equilibrium dissipation system with tunable molecular fuel flux

Jiayu Yang, Tengfang Zhang, Linghao Zhang and Xin Su\*

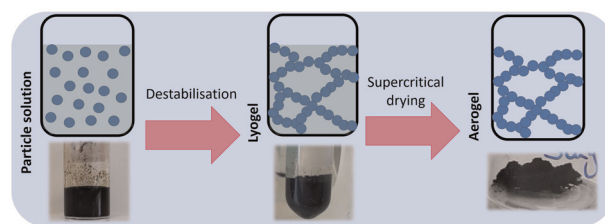


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**Magnetic aerogels from FePt and CoPt<sub>3</sub> directly from organic solution**

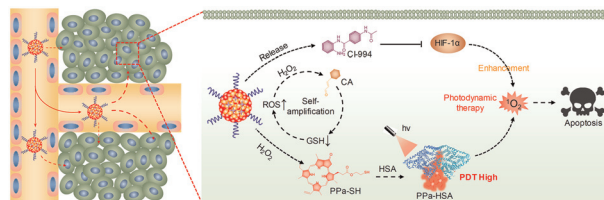
L. Schoske, F. Lübke-mann-Warwas, I. Morales, C. Wesemann, J. G. Eckert, R. T. Graf and N. C. Bigall\*



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**Self-amplified activatable nanophotosensitizers for HIF-1 $\alpha$  inhibition-enhanced photodynamic therapy**

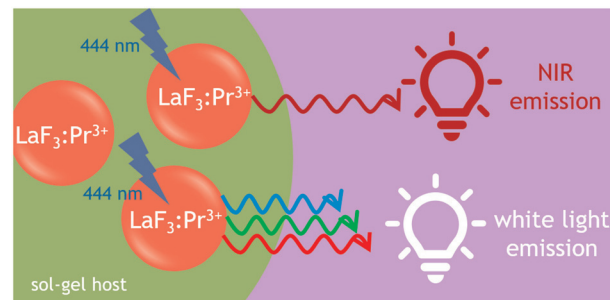
Zixin Guo, Nana Wang, Xiaowen He, Jinlong Shen, Xiangqi Yang, Chen Xie, Quli Fan\* and Wen Zhou\*



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**White light and near-infrared emissions of Pr<sup>3+</sup> ions in SiO<sub>2</sub>-LaF<sub>3</sub> sol-gel nano-glass-ceramics**

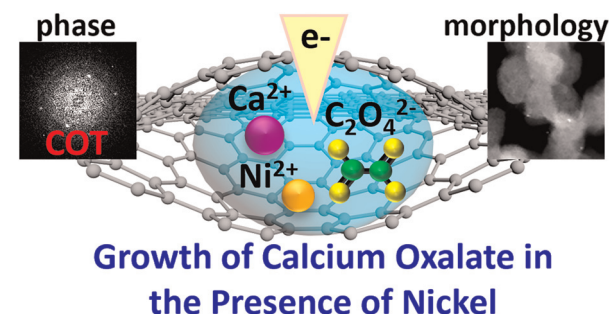
Natalia Pawlik,\* Tomasz Goryczka, Maciej Zubko, Joanna Śmiarowska and Wojciech A. Pisarski



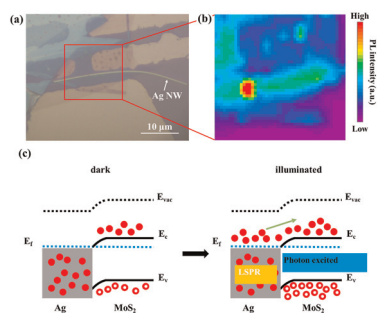
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**Nickel as a modifier of calcium oxalate: an *in situ* liquid cell TEM investigation of nucleation and growth**

Lioudmila V. Sorokina, Abhijit H. Phakatkar, Pavel L. Rehak, Petr Král, Tolou Shokuhfar and Reza Shahbazian-Yassar\*



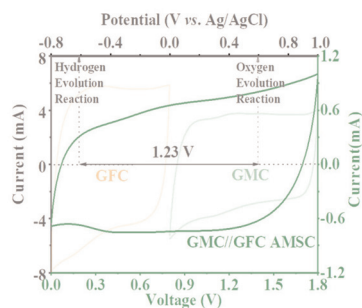
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### Surface plasmon enhancement in silver nanowires and bilayer two-dimensional materials

Weibin Zhang, Cunwei Kong, Xinfeng Zhang, Quan Wang\* and Wei Xue\*

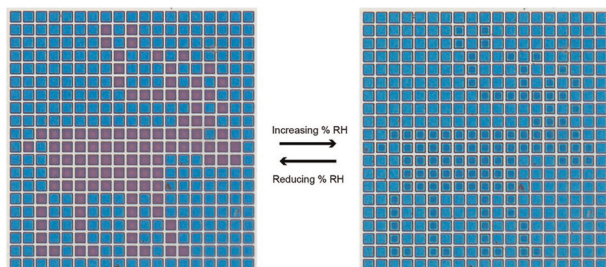
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### 1.8 V all-solid-state flexible asymmetric microsupercapacitors based on direct-writing electrodes

Yaling Wang, Mengyuan Ran, Ming Zhu and Lei Li\*

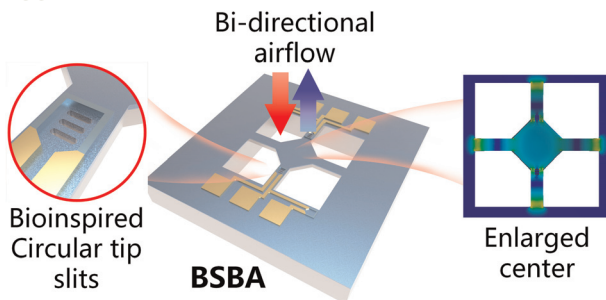
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### Configurable swellability of hydrogel microstructure for structural-color-based imaging concealment/encryption

Yunhui Wu, Lanlan Liu, Guohao Bo, Qiang Li, Chenjie Dai, Zhongyang Li, Jian Zhang\* and Xuefeng Zhang\*

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### Bio-inspired, sensitivity-enhanced, bi-directional airflow sensor for turbulence detection

Fu Liu, Yufeng Zhao, Nan Xie, Yueqiao Wang, Meihe Liu, Zhiwu Han and Tao Hou\*



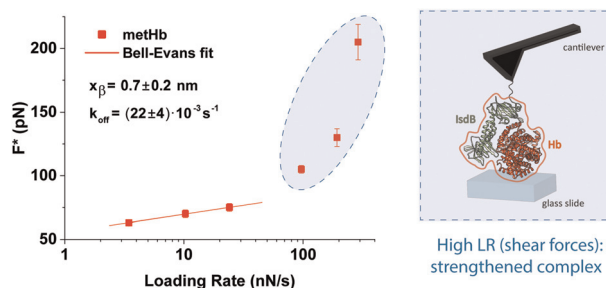


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# Nanoscale dynamical investigation of the hemoglobin complex with the bacterial protein IsdB: is their interaction stabilized by catch bonds?

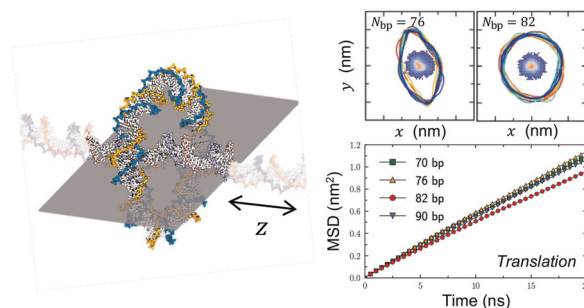
Valentina Botti, Omar De Bei, Marialaura Marchetti, Barbara Campanini, Salvatore Cannistraro, Stefano Bettati\* and Anna Rita Bizzarri\*



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# Structure and dynamics of double-stranded DNA rotaxanes

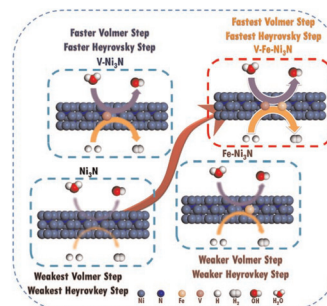
Yeonho Song and Jun Soo Kim\*



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# Bi-cation incorporated Ni<sub>3</sub>N nanosheets boost water dissociation kinetics for enhanced alkaline hydrogen evolution activity

Yu-wen Hu, Fozia Sultana, M.-Sadeeq Balogun,\* Tuzhi Xiong,\* Yongchao Huang and Yu Xia\*



## CORRECTION

4333

# Correction: Carbon quantum dots (CQDs)-modified polymers: a review of non-optical applications

Zeeshan Latif, Kinza Shahid, Hassan Anwer, Raghisa Shahid, Mumtaz Ali,\* Kang Hoon Lee\* and Mubark Alshareef

