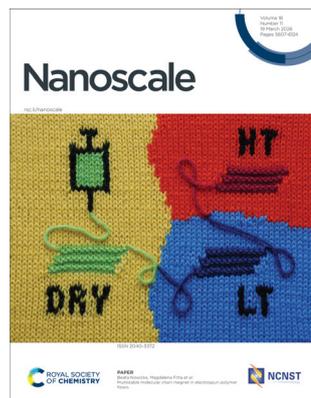


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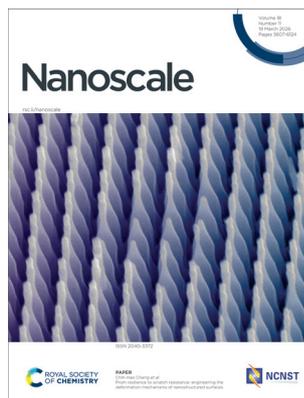
ISSN 2040-3372 CODEN NANOHL 18(11) 5607-6124 (2026)



### Cover

See Beata Nowicka, Magdalena Fitta *et al.*, pp. 5754–5768.

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### Inside cover

See Chih-Hao Chang *et al.*, pp. 5769–5780.

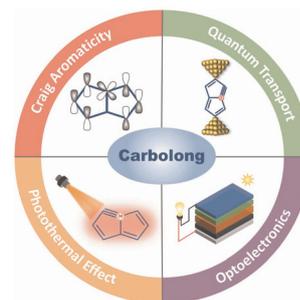
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5621

### Carbolong complexes: an emerging class of metallaromatics for next-generation functional materials

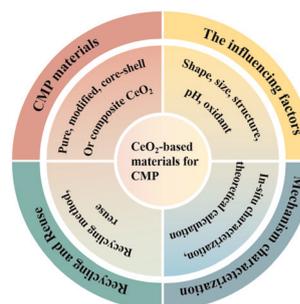
Haixin Zhang, Shiyang Chen,\* Haiping Xia and Kun Wang\*



5638

### Classification, performance and recycling of ceria-based materials used for chemical mechanical polishing

Meiwen Tie, Yifei Wang, Cheng Zhang and Xiubing Huang\*



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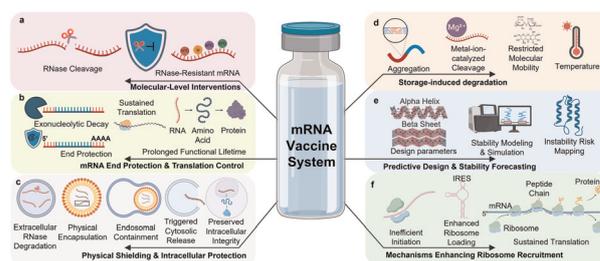
Fundamental questions  
Elemental answers

## REVIEWS

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## Engineered strategies for enhancing mRNA vaccine stability in delivery and storage

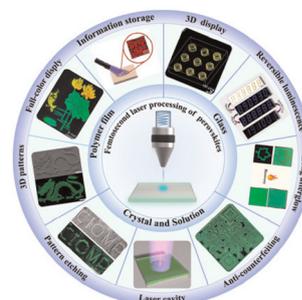
Elif Naz Cerav, Zhiying Yao and Bingbing Sun\*



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## Recent advances in femtosecond laser micro/nano processing of perovskites for optical applications

Hao Song, Kai Yin,\* Jianqiang Xiao, Jiaqing Pei, Fan Zhang and Yu Chen

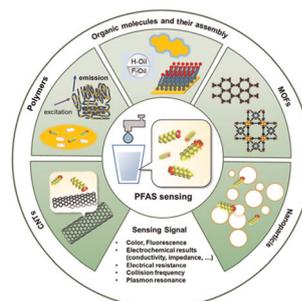


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## Recent ultratrace per- and polyfluoroalkyl substance (PFAS) detectors

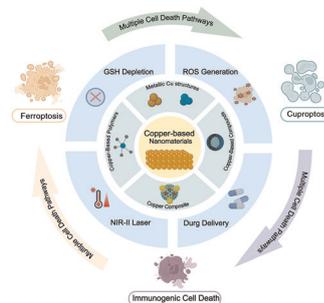
Jiwoo Park and Sohyun Park\*



5727

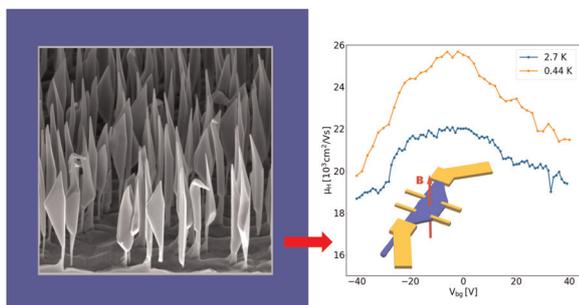
## Copper-based architectures for bladder cancer therapy: mechanistic insights, progress and prospects

Pu Zhang, Wei Xiong, Kai Wang, Xiaoli Zhao,\* Xiaoying Liu\* and Ming Huang\*



## COMMUNICATIONS

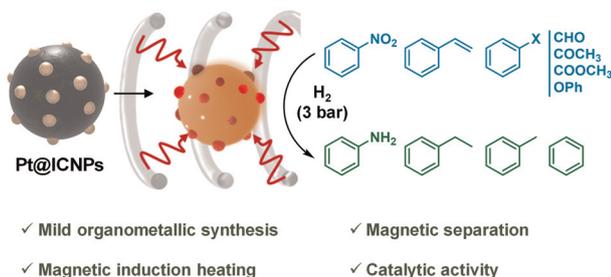
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### Growth and transport properties of InAsSb nanoflags

Sebastian Serra, Gaurav Shukla, Giada Bucci, Robert Sorodoc, Valentina Zannier, Fabio Beltram, Lucia Sorba\* and Stefan Heun\*

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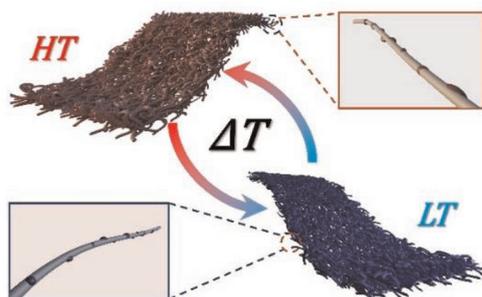


### Synthesis and characterization of platinum-decorated iron carbide nanoparticles and their potential for magnetically induced catalysis

Sheng-Hsiang Lin, Oscar Suárez-Riaño, Víctor Varela-Izquierdo, Farzan Shabani, Pier-Francesco Fazzini, Edwin A. Baquero, Simon Tricard, Bruno Chaudret,\* Walter Leitner and Alexis Bordet\*

## PAPERS

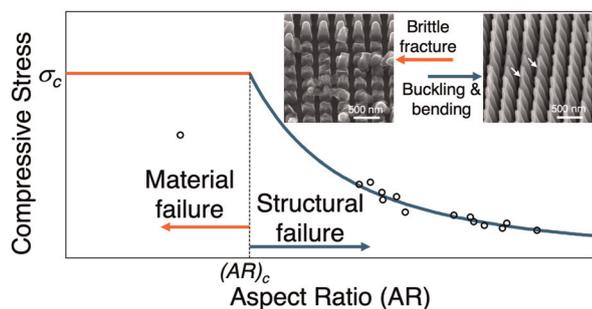
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### Multistable molecular chain magnet in electrospun polymer fibers

Aleksandra Pacanowska, Gaja Wota, Matgorzata Jasiurkowska-Delaporte, Naveen Kumar Chogondahalli Muniraju, Wojciech Sas, Kamila Komędera, Wojciech Tabiś, Alexey Maximenko, Grzegorz Gazdowicz, Paweł Czaja, Marcin Perzanowski, Marzena Mitura-Nowak, Beata Nowicka\* and Magdalena Fitta\*

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### From resilience to scratch resistance: engineering the deformation mechanisms of nanostructured surfaces

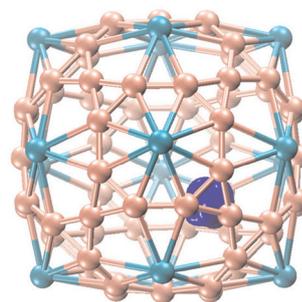
Mehmet Kepenekci, Kun-Chieh Chien, Natalia A. Rueda Guerrero, Kwon Sang Lee and Chih-Hao Chang\*



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### Multi-center bonding and structural integrity in $M_6M_8B_{60}$ ( $M = Y, La, \text{ and } Lu$ ) metallo-borospherenes

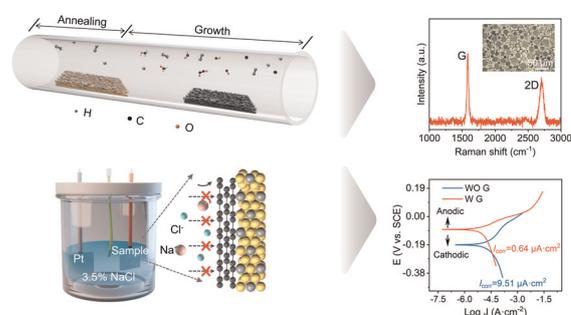
Yi-Sha Chen, Jing-Jing Guo, Peng-Bo Liu, Hui-Yan Zhao,\* Jing Wang and Ying Liu\*



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### Low-temperature growth of high-quality multilayer graphene films on porous CuNi alloys for enhanced corrosion resistance

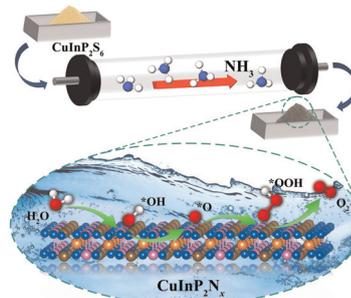
Fan Xie, Fan Xia, Zhangyao Xu, Han Han, Ziqi Wang, Qingda Zhu, Haochuan Chen, Fuchao Yan, Yifan Lian, Jingyu Sun and Jincan Zhang\*



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### Noble-metal-free, atomically thin $CuInP_2N_x$ nanosheets as highly efficient, stable, and low-cost electrocatalysts in acid oxygen evolution reactions

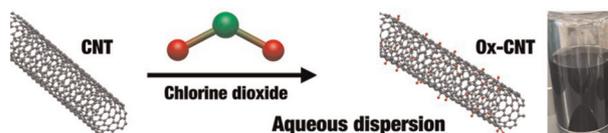
Wentao Hou, Xin Zhou,\* Tingting Cheng, Haoqiang Chi, Yongcai Zhang, Chen Zhuang, Yubin Zheng, Xiaohui Zhong,\* Zhigang Zou and Yong Zhou\*



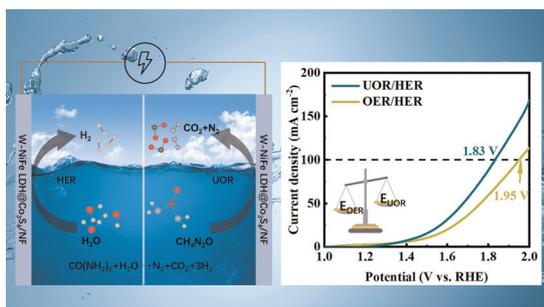
5805

### Aqueous dispersion of carbon nanotubes by chlorine dioxide oxidation

Yuki Itabashi, Ai Sunami, Kaoru Maeno, Hiroshi Ueno, Takashi Itoh, Hiroshi Fukumura and Kei Ohkubo\*



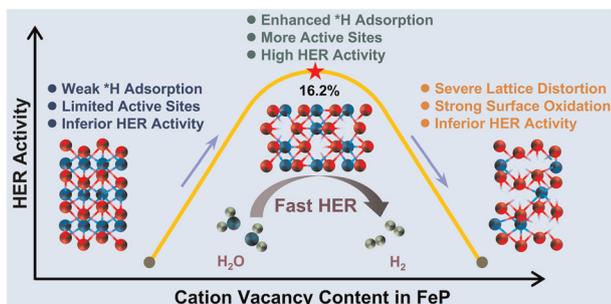
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### Synergistic W-doping and $\text{Co}_3\text{S}_4$ heterostructuring in NiFe LDH for energy-saving hydrogen production via urea-assisted water electrolysis

Zelin Yang, Peng Dai,\* Haoran Zhen, Tongtong Jiang,\* Kaiwen Wang and Mingzai Wu\*

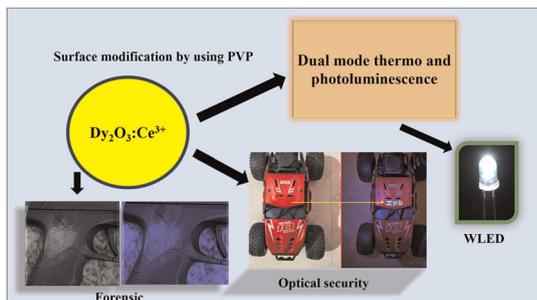
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### Tunable cation vacancy engineering of FeP toward efficient hydrogen evolution reaction

Zuhao Wang, Jie Gu, Yifan Leng, Long Cheng, Yuan-Yuan Hei,\* Chen Chen, Ruting Lin, Zonghua Pu, Hongfang Du\* and Liangxu Lin\*

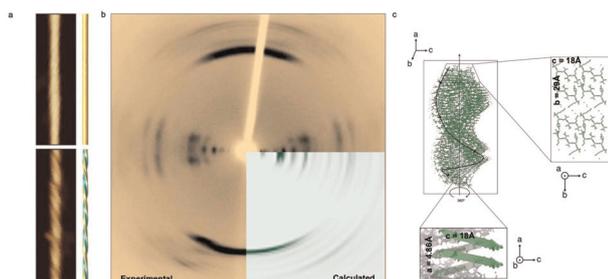
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### PVP-driven surface engineered $\text{Ce}^{3+}$ doped $\text{Dy}_2\text{O}_3$ nanoparticles for dual mode thermo and photoluminescence studies in TLD, forensic, anti-counterfeiting, and solid-state lighting applications

Kartik Gopal, D. V. Sunitha\* and A. P. Gnana Prakash

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### The supramolecular architecture of amyloid fibrils formed by a human tau-derived hexapeptide VQIVYK

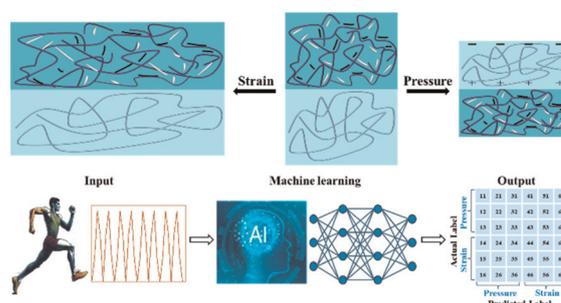
Irene del Mar Fariñas Lucas, Youssra K. Al-Hilaly, Liisa Lutter,\* Wei-Feng Xue\* and Louise C. Serpell\*



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### Nano-engineered PEDOT(MXene)/PVDF(HFP) bilayer membranes for dual-mode flexible sensing and machine learning-guided signal recognition

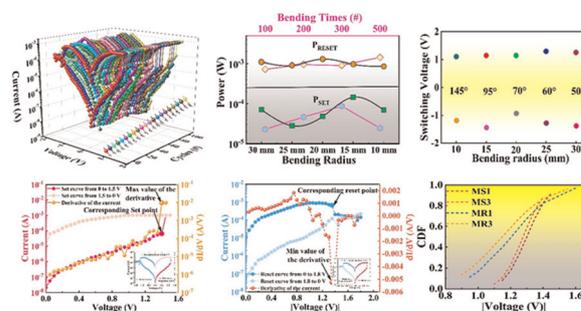
Pingping Wu, Lin Li, Qilin Guo, Sijing Zhang\* and Yuanzhen Zhou\*



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### Statistical variability analysis of resistive switching in lead-free double perovskite flexible memristors

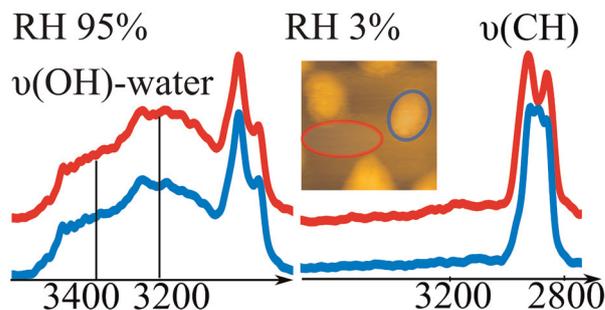
Susmita Das, Prabir Kumar Haldar and Pranab Kumar Sarkar\*



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### A nanoscale view on oligo(ethylene glycol) self-assembled monolayer hydration

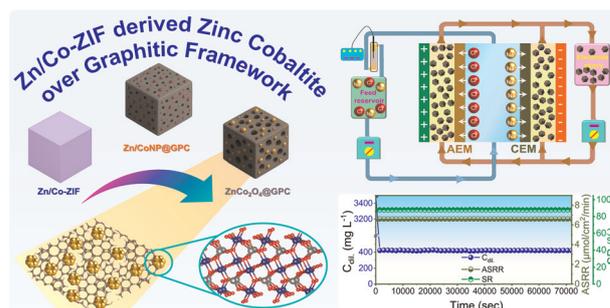
Nafiseh Samiseresht, Anne Jakubek, Petra Ebbinghaus and Martin Rabe\*



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### Structurally engineered ZnCo<sub>2</sub>O<sub>4</sub> spinel nanoparticles on ZIF-derived hierarchically porous graphitic carbon for high-performance flow capacitive deionization

Swayamprakash Biswal, Biswajit Mishra and Bijay P. Tripathi\*



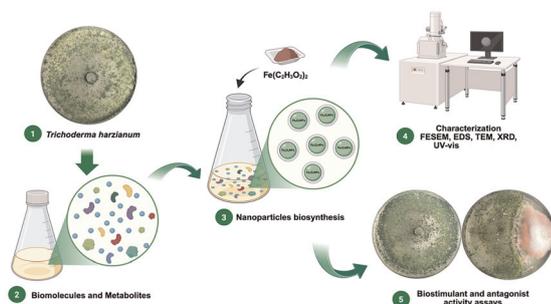
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### Morphology-dependent catalytic performance of Co<sub>3</sub>O<sub>4</sub> nanomaterials in the oxidative dehydrogenation of tetrahydroquinolines

Suresh Babu Putla, Palanivel Subha, Nittan Singh, Putla Sudarsanam\* and Pavuluri Srinivasu\*

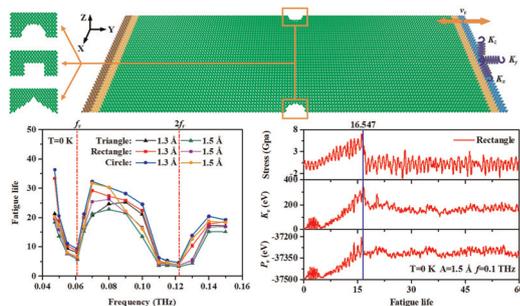
5918



### Biosynthesized iron oxide nanoparticles using *Trichoderma harzianum* with applications for phytopathogen control

Erika Armenta-Jaime, Ángeles Alitzel Rivera Román, América R. Vázquez-Olmos, Velma Beri Kimbi Yaah, Satu Ojala, Oscar Arce Cervantes, Andrés Galdámez-Martínez\* and Silvia Armenta\*

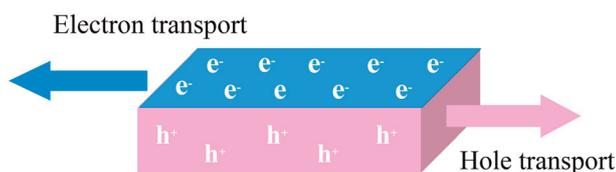
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### Resonance-induced fatigue characteristics of monolayer black phosphorus with different notch shapes

Yun Dong,\* Yuxin Zhang, Futian Yang, Xinyi Tang, Rong Deng, Jinguang Wang and Bo Shi

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### Spatially separated bipolar transport and surface electron accumulation in tungsten diselenide nanostructures

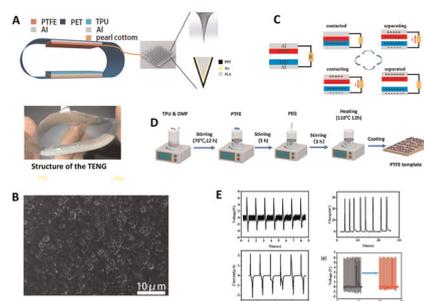
Hemant Kumar Bangolla, Chi-Yang Chen, Cheng-Maw Cheng, Kuei-Yi Lee, Liang-Chiun Chao, Rajesh Kumar Ulaganathan, Raman Sankar, Abhishek Ghosh and Ruei-San Chen\*



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### Fibroblast growth enhancement and antibiotic-free disinfection via microneedles with self-powered electrical stimulations

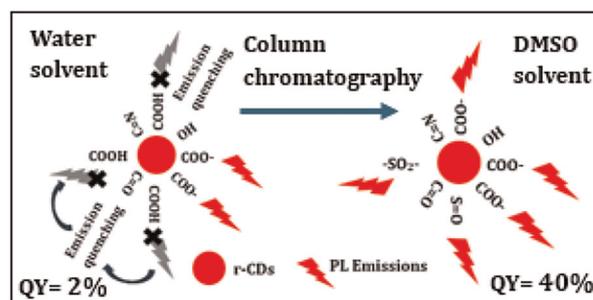
Zheng Wang, Fuqi Lu, Shuting Wang, Xin Wang, Yan Sun, Wenhui Guan, Jianming Dang, Haoxuan Sun, Jiahui Zhang, Qiang Niu, Juqiang Han, Ziyang Ma, Jinjiang Cui, Yunliang Li, Ying Liu,\* Meidong Huang,\* Liuxin Duan\* and Quanda Liu\*



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### Red emissive carbon dots: synergistic interplay between core and surface states

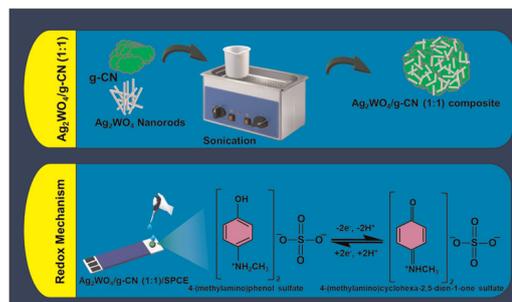
J. Sabayi, S. Hammad, G. Bacher and M. Ghali\*



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### Nanostructured silver tungstate rods decorated on graphitic carbon nitride: an effective electrocatalyst for electrochemical sensing of carcinogenic organic pollutant metol

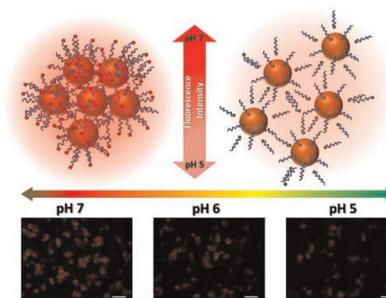
Elaiyappillai Elanthamilan and Sea-Fue Wang\*



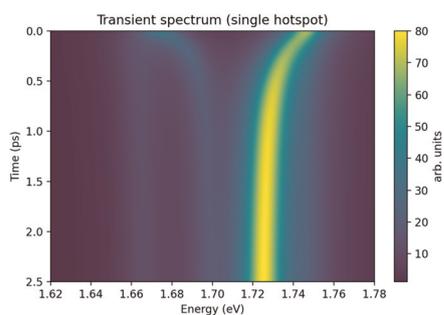
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### Thiolactone ring dynamics in dimeric lipids enable pH-switchable supramolecular tuning in surface-engineered quantum dots

Pranay Saha, Parikshit Moitra, Sayan Bera, Samrat Das Adhikari, Narayan Pradhan and Santanu Bhattacharya\*



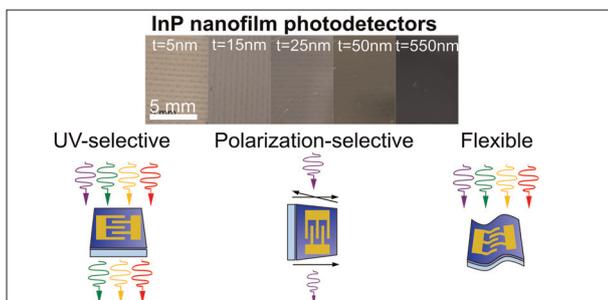
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### Ultrafast exciton–polaron dynamics in moiré superlattices

Junais Habeeb Mokkath

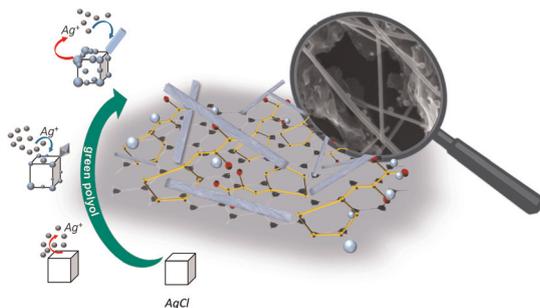
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### Polarization-selective, tailorable, and flexible InP nanofilm UV photodetectors

Tuomas Haggren,\* Wei Wen Wong, Yang Yu, Veda C. Dinesh, Siti Samsuri, Chenglong Xu, Madhu Bhaskaran, Chennupati Jagadish, Lan Fu and Hark Hoe Tan\*

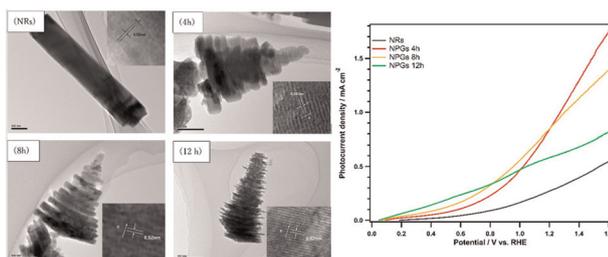
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### A mild colloidal strategy for controlling the morphology of reduced graphene oxide–Ag nanowire hybrids

Alessio Massaro, Rafique Ahmed Lakho, Adriana Grandolfo, Giuseppe Valerio Bianco, Elisabetta Fanizza, Marinella Striccoli, Roberto Comparelli, Maria Lucia Curri\* and Chiara Ingrassio\*

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### Controlling ZnO nanopagoda structure enhances photoelectrochemical water splitting

Soshi Mizuno, Rina Watanabe, Marwa Mohamed Abouelela, İrem Nur Gamze Özbilgin, Tohru S. Suzuki, Tetsuo Uchikoshi, Wai Kian Tan, Hiroyuki Muto, Atsunori Matsuda and Go Kawamura\*

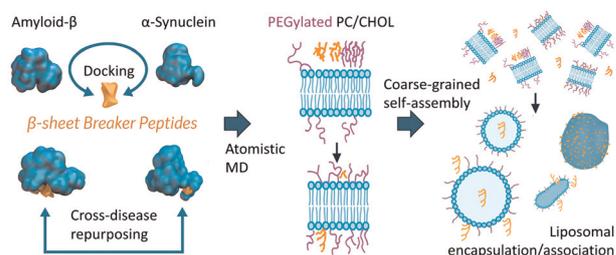


## PAPERS

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### Modeling $\beta$ -sheet breaker peptides across multiple resolutions: from neurological targets to liposomal membranes

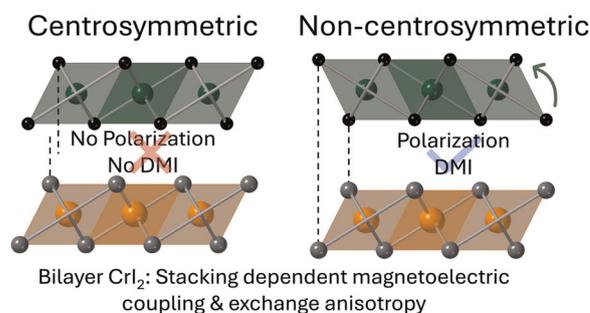
Gulsah Gul



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### Stacking-controlled magnetic exchange and magnetoelectric coupling in bilayer $\text{CrI}_2$

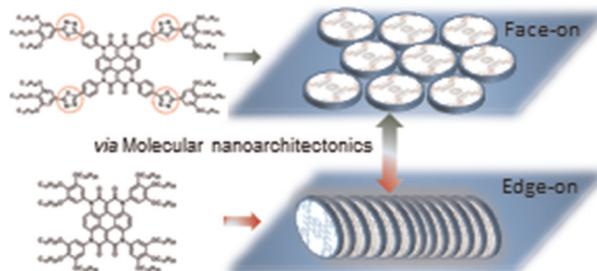
B. Valdés-Toro, I. Ferreira-Araya, R. A. Gallardo and J. W. González\*



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### Precise molecular ordering in discotic monolayers through supramolecular nanoarchitectonics

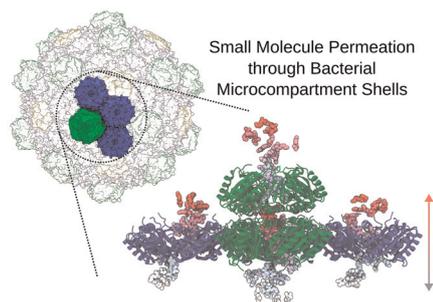
Himangshu Paul, Priyanka Priyadarshani Samal, Nishant Kumar, Ritobrata De, Joydip De, Santanu Kumar Pal, Puneet Mishra\* and Alpana Nayak\*



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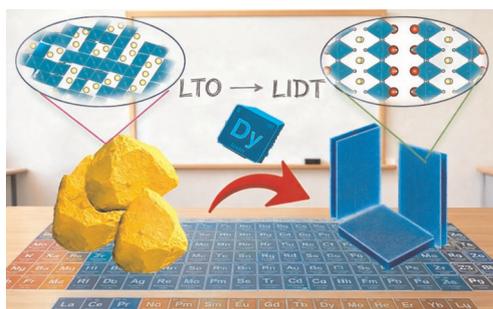
### Quantifying selective metabolite transport for the bacterial microcompartment from *Haliangium ochraceum* with molecular dynamics simulations

Neetu S. Yadav, Saad Raza, Yali Wang, Joel F. Landa, Eric L. Hegg, Robert P. Hausinger and Josh V. Vermaas\*



## PAPERS

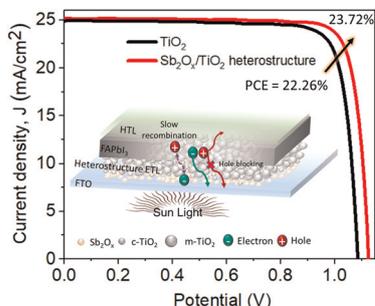
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### Dysprosium induced structural modulation for reduced working potential and enriched lithium storage sites

Yi Zhu, Peng Li,\* Peng Zhao, Yingchun Yan, Qinggang Zhang,\* Xinghui Liang, Rongzhou Wang,\* Minghui Tan and Mingbo Wu\*

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### Enhanced carrier extraction and photostability in perovskite solar cells via a band-engineered Sb<sub>2</sub>O<sub>x</sub>/TiO<sub>2</sub> bilayer heterojunction

Nasrin Siraj Lopa, Yuna Choi, Md. Mahbubur Rahman and Tae Woong Kim\*

## CORRECTION

6122

### Correction: Unlocking the loading limit in single-atom photocatalysts via defect-induced metal trapping

Laihao Liu, Yucong Huang, Xiaocang Han, Chuyue Lu, Jingjing Xiong,\* Yuqing Qiu, Guanwu Lian, Fangrun Jin, Wenguang Tu, Xiaoxu Zhao, Zhigang Zou and Zhongxin Chen\*

