

# Journal of Materials Chemistry C

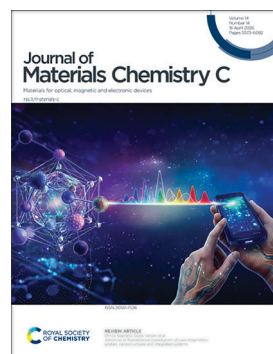
Materials for optical, magnetic and electronic devices

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## IN THIS ISSUE

ISSN 2050-7526 CODEN JMCCCX 14(14) 5573-6082 (2026)



### Cover

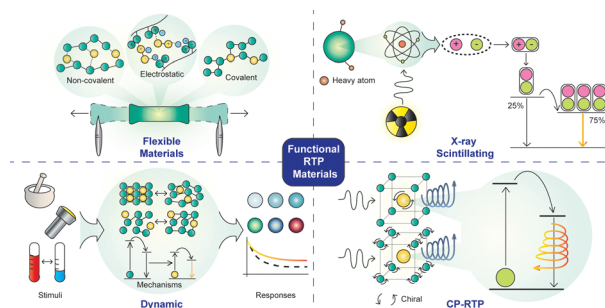
See Enrica Soprano, Giulia Vanoni *et al.*, pp. 5607–5628. Image generated with Adobe Firefly and reproduced by permission of Enrica Soprano and Giulia Vanoni from *J. Mater. Chem. C*, 2026, **14**, 5607.

## HIGHLIGHT

5586

### Functional organic room-temperature phosphorescent materials

Durga Chandrashekar, Nan Gan, Filip Aniés and So Min Park\*

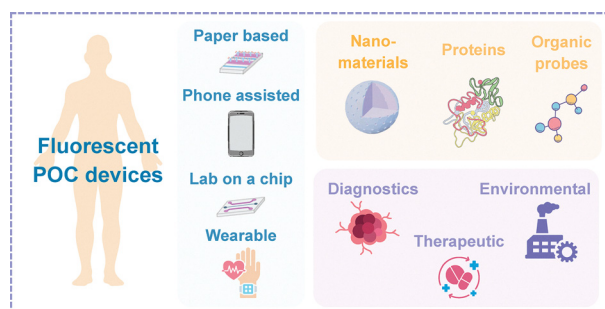


## REVIEWS

5607

### Advances in fluorescence-based point-of-care diagnostics: probes, nanostructures and integrated systems

Manuela Cedrún-Morales,\* Enrica Soprano, Giulia Vanoni, Anil Chandra, Helena Luele, Francesco Colella, Stefania Forciniti, Valentina Onesto, Giuliana Grasso, Giuseppe Gigli and Loretta L. del Mercato\*



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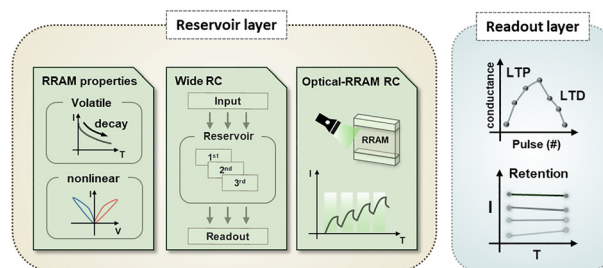


## REVIEWS

5629

## RRAM-enabled reservoir computing: from interfacial switching dynamics to scalable and hybrid architectures

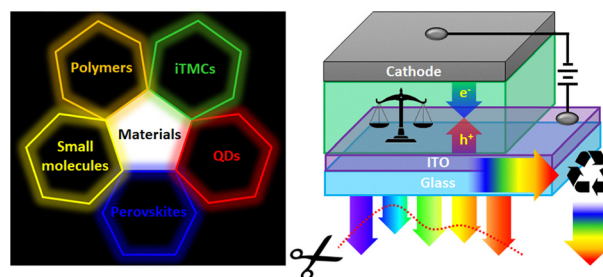
Seohyeon Ju and Sungjun Kim\*



5653

## White light-emitting electrochemical cells: progress, challenges, and outlook

Hai-Ching Su\* and Chen-You Weng

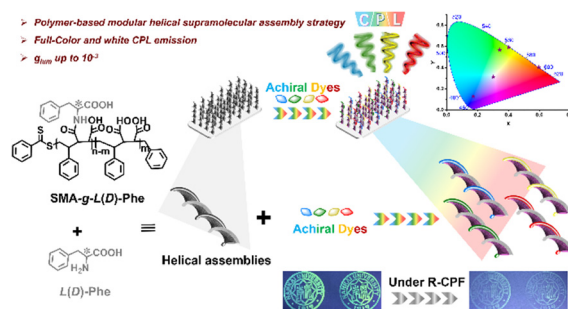


## PAPERS

5677

## Hierarchical chiral amplification via grafting and co-assembly in flexible polymers for full-color circularly polarized luminescence

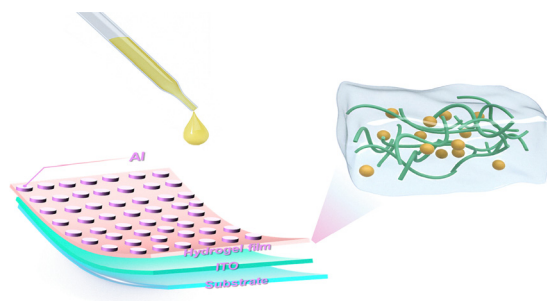
Chengkai Zhou, Yan Zhang, Weixing Chang, Lingyan Liu\* and Jing Li\*



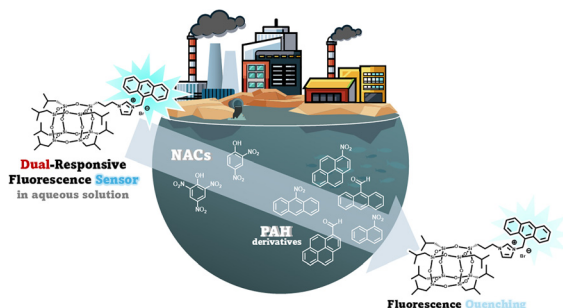
5688

## Constructing an enzyme-free highly sensitive blood sugar detection platform based on the Maillard reaction using amino-functionalized black phosphorus quantum dot hydrogels

Guangwei Li, Kexin Wang,\* Dongliang Zhang, Yuyan Tang, Hui Zheng, Qian Chen, Haidong He\* and Yu Chen\*



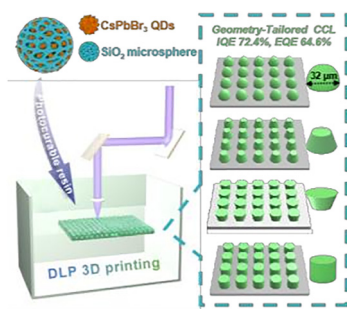
5699



### Imidazolium–POSS–anthracene hybridfluorophores for sensitive and selective detection of nitro-aromatic compounds (NACs) and polycyclic aromatic hydrocarbon (PAH) derivatives

Chenchira Pherkkhntod, Supphachok Chanmungkalakul, Vuthichai Ervithayasuporn, Worawat Meevasana, Jonggol Tanirungrotechai and Thanthapatra Bunchuay\*

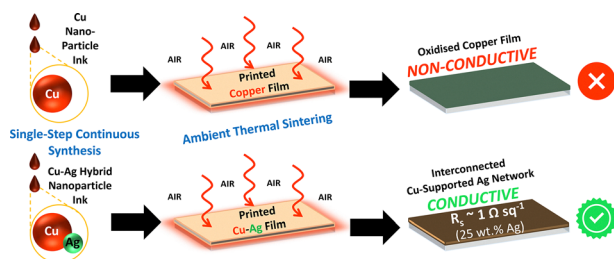
5712



### 3D-printed mesoporous-silica-confined perovskite quantum dot micro-optics for geometry-tailored color conversion in micro-LED displays

Chuyu Qin, Mengyang Wang, Aixin Luo, Guangda Du, Jiaxian Liu, Zekai Hong, Tingshi Yang, Pu Zhang, Chunlin Ma, Luyu Cao,\* Yayun Zhou\* and Bingfeng Fan\*

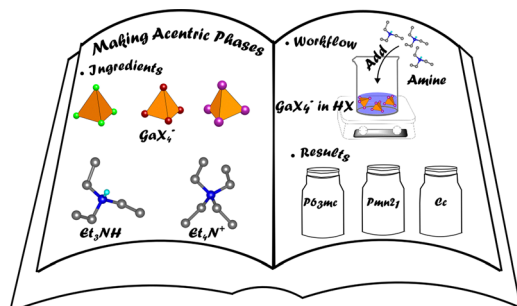
5720



### Hybrid copper–silver nanoparticle inks and their performance under thermal and photonic sintering

David Pervan, Robyn Worsley, Anil Bastola, Christopher Tuck, Ricky Wildman, Richard Hague and Edward Lester\*

5734



### Noncentrosymmetric hybrid gallium halides built from non-polar inorganic units

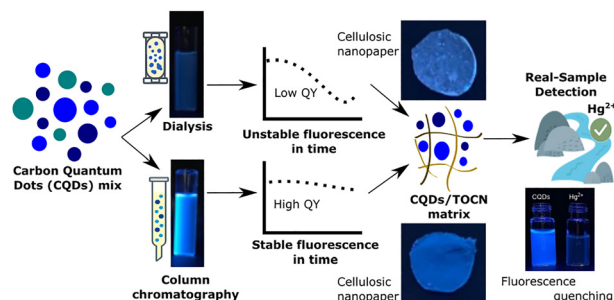
Sergei A. Novikov, Eric A. Gabilondo, Aleksandra D. Valueva, Jason Locklin and Vladislav V. Klepov\*



5741

### The impact of quantum dot purification methods on sensing performance for heavy metal detection in environmental pollution monitoring

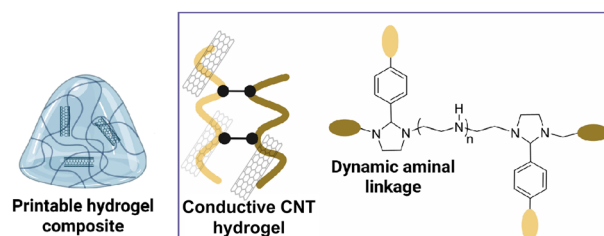
Laura A. Rojas Palomino, Cristian Blanco Tirado, Marianny Y. Combariza and Carlos A. Martinez Bonilla\*



5754

### Direct-ink-writing of multi-functional dynamic polymer-carbon nanotube hydrogel composites

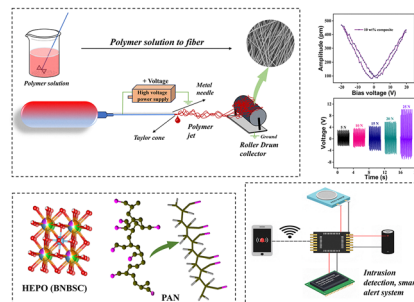
Peidong Shen, Grishmi Rajbhandari, Brett Leslie Pollard, Jason S. Buchanan, Ashwani Kumar and Luke A. Connal\*



5764

### Enhanced piezoelectric performance of PAN nanofibers incorporated with a lead-free high entropy perovskite oxide for energy harvesting, sensing and IoT-based smart alert systems for security monitoring

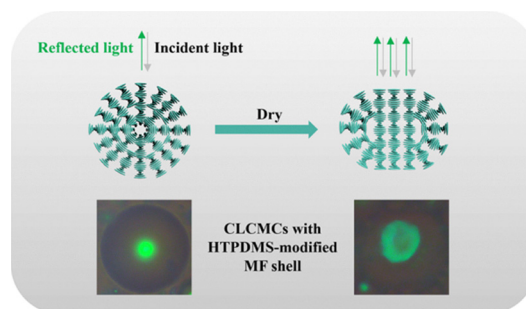
Niloy Mridha, Megha Garg, Shewli Pratihari, Keshav Bulia, Mohammed Hassan Shaikh, Aswani Yella and Prasanna Kumar S. Mural\*



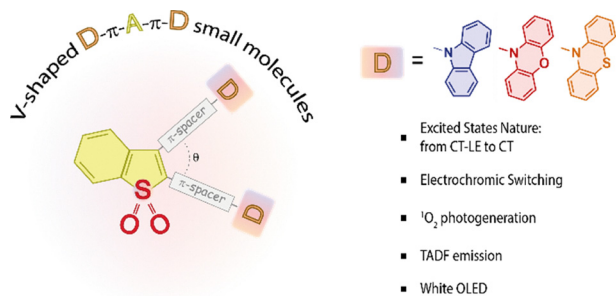
5783

### Deformable cholesteric liquid crystal microcapsules for high-reflectivity smart coatings

Beibei He, Xiaomin Liu, Mengke Hu, Chunhui Zeng, Yaodong Feng, Miao Xu and Hongbo Lu\*



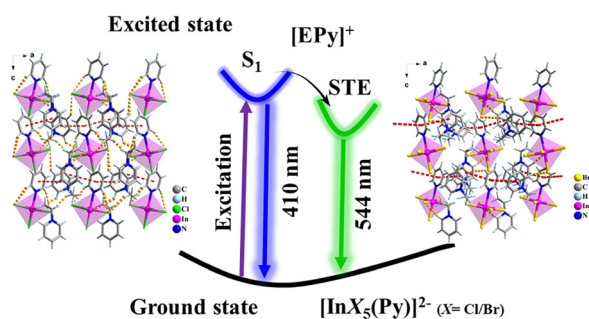
5790



### V-shaped D- $\pi$ -A- $\pi$ -D molecules based on benzothio-phenylene-*S,S*-dioxide: tuning of excited states *via* donor strength to engineer photoactive materials

Mattia Zangoli, Antonio Maggiore, Nicol Spallacci, Fabrizio Mariano, Filippo Monti,\* Soraia Flammini, Marco Pugliese, Giuseppe Gigli, Vincenzo Maiorano and Francesca Di Maria\*

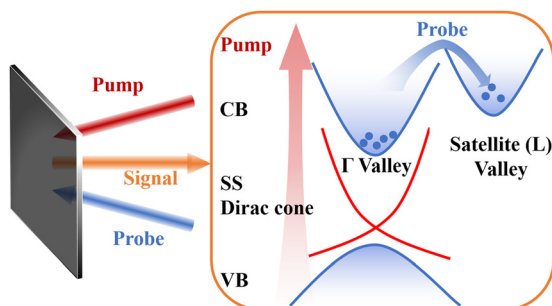
5803



### Halogen-driven emission switching in zero-dimensional indium halides: from efficient blue to yellow emission

Liao-Kuo Gong,\* Jing-Yue Zhang, Jia-Xin Cui, Xin-Ping Guo, Hao-Wei Lin and Yuan Niu

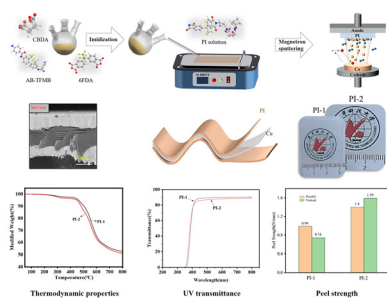
5810



### A multi-state spectroscopic approach to carrier dynamics in thin-film topological insulators

Xianting Zhang, Siyao Li, Che-Wei Huang, Jung-Chun-Andrew Huang, Chih-Wei Luo, Chao-Kuei Lee\* and Hisang-Chen Chui\*

5818



### Adhesion enhancement between colorless biphenyl polyimide copolymerized film and magnetron sputtering Cu for FPC circuit board

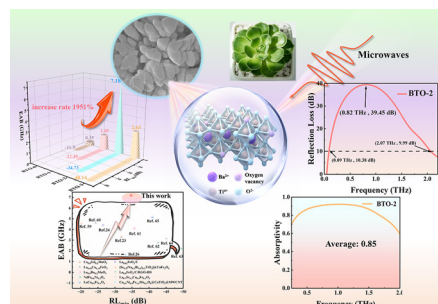
Yan Liu, Zhizhi Hu, Zhiyong Xiao, Xinming Wang, Ziyang Gao, Yimin Zhu, Qifeng Lu, Hongbin Zhao,\* Wei Chen\* and Ke Ma\*



5827

### Morphological regulation on barium titanate perovskite particles for broadening microwave absorption in GHz and THz range

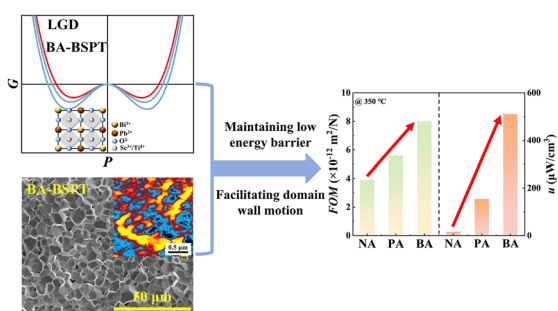
Yu-Kai Luo, Hai-Sen Gao, Yichuan Zhang,\* Kai Zhang, Xiao-Juan Lei and Ming Wang\*



5846

### Significantly enhanced high-temperature power generation of $\text{BiScO}_3\text{-PbTiO}_3$ ceramics by rationally regulating atmosphere sintering

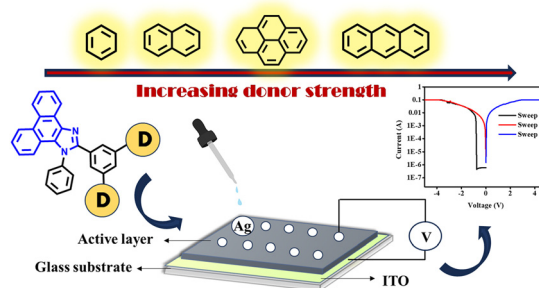
Leikun Ni, Wenlong Xu, Jun Zhao, Mupeng Zheng and Yudong Hou\*



5857

### Influence of aromatic $\pi$ -extension on phenanthro[9,10-*d*]imidazole-based donor-acceptor systems for non-volatile resistive WORM memory device applications

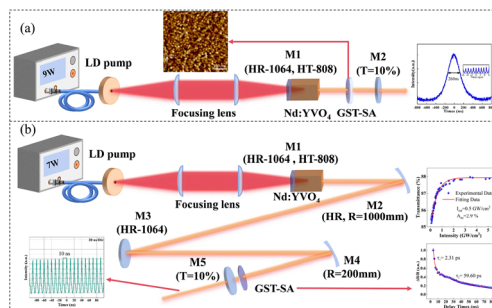
Ajay Namitha, Madanan Akshaya, Predhanekar Mohamed Imran, Nattamai. S. P. Bhuvanesh and Samuthira Nagarajan\*



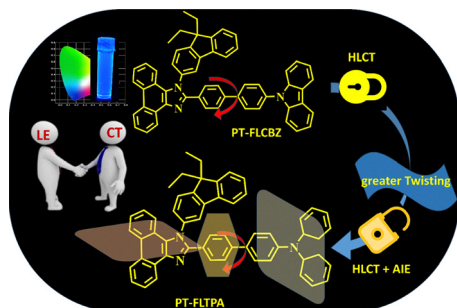
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### Nonlinear optical properties of a $\text{Ge}_2\text{Sb}_2\text{Te}_5$ film saturable absorber for short-pulse solid-state lasers

Zhengwu Liu, Liang Xie, Yuxuan Sun, Jing Lv, Xinwei Zhang, Jiang Wang,\* Zongcheng Miao and Guanghua Cheng



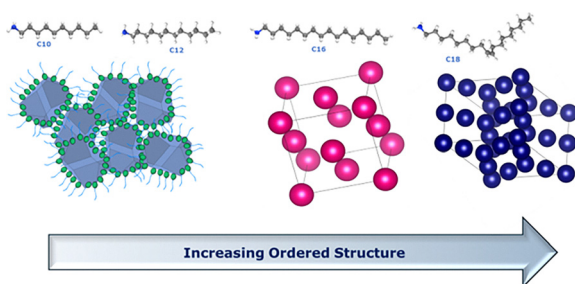
5879



### An HLCT/HLCT–AIE-enabled donor–acceptor system through a locking and unlocking strategy and its versatile applications

Bhabana Priyadarshini Debata, Khitisruta Nayak, Manjit Dehury, Sabita Patel\* and Sivakumar Vaidyanathan\*

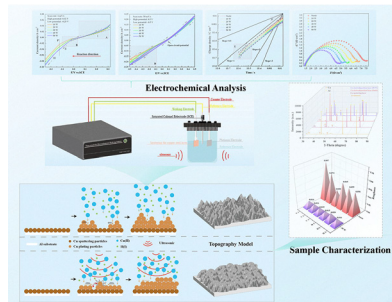
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### The key role of soft corona in the superlattice formation of CeO<sub>2</sub> nanoparticles

Noemi Gallucci, Alessandro Cangiano, Rosario Oliva, Donato Ciccarelli, Gennaro Rollo, Rocco Di Girolamo, Nathan Cowieson, Giuseppe Vitiello and Luigi Paduano\*

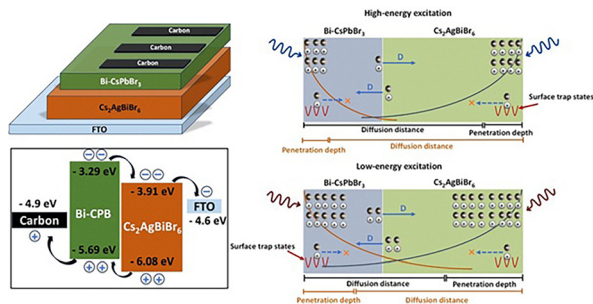
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### Effect of an ultrasonic field on the nucleation and growth mechanism of electrodeposited Cu thin films on a magnetron sputtered Cu layer

Yaning Chai, Hajjun Hu, Fenfen Huang, Ziyue Li, Qiming Liang, Hou Yao, Shuo Tong, Yu Sun, Rui Feng\* and Xinde Zhu\*

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### Tailoring heterojunction energetics for a high-performance self-powered halide perovskite photodetector without charge transport layers

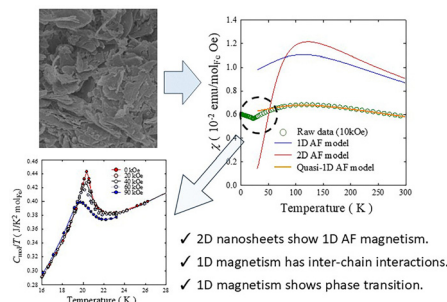
Chinmay Barman, Rajendra Kumar Challa and Sai Santosh Kumar Raavi\*



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### Quasi-one-dimensional magnetism of transition-metal oxide in Fe-based inorganic–organic hybrid nanosheets

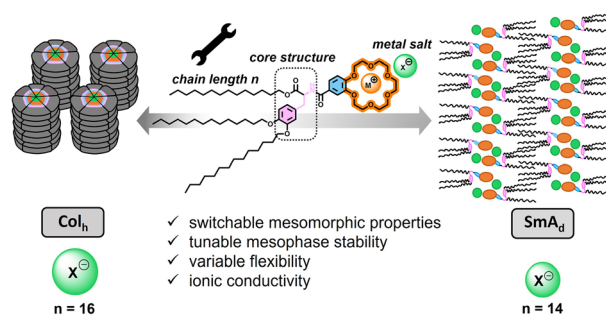
Takayuki Nakane,\* Takashi Naka, Kazuyoshi Sato, Noriki Terada, Pascal Manuel, Ahmed Ibrahim, Shiro Kubuki, Chiya Numako, Dimitry Khalyavin, Anne de Visser and Hiroya Abe



5942

### Salt complexation drives liquid crystalline self-assembly in crown ether–amino acid hybrids

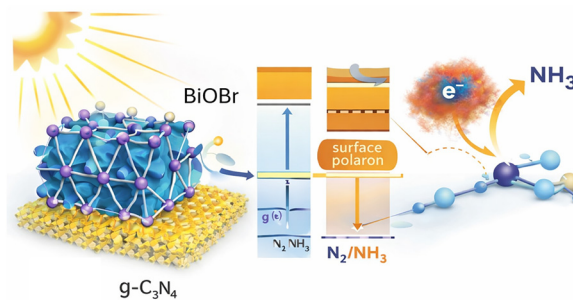
Aileen R. Raab,\* Tanja Robin Grieser, Daniel Rück, Zhuoqing Li, Anna Zens, Johanna R. Bruckner,\* Patrick Huber, Andreas Schönhals, Paulina Szymoniak\* and Sabine Laschat\*



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### Mechanistic insights into the nitrogen photofixation reaction by BiOBr-based heterojunctions

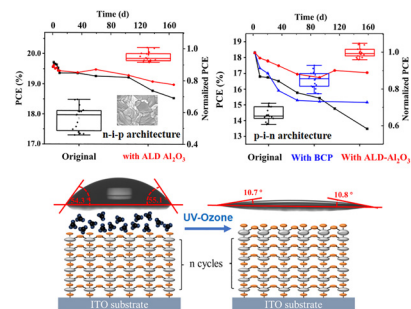
Giulia Giovilli, Francesca Merlo, Andrea Olivati, Myriam Chems, Andrea Speltini, Michele Loriso, Silvia Colella, Andrea Listorti, Alessandro Landi, Andrea Peluso, Antonella Profumo, Mirko Prato, Julia Wiktor, Annamaria Petrozza, Francesco Ambrosio\* and Lorenzo Malavasi\*



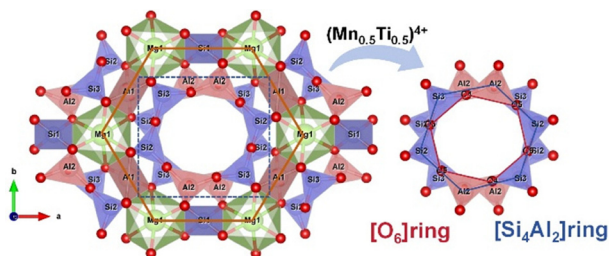
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### Enhancing the efficiency and stability of perovskite solar cells using ALD- $\text{Al}_2\text{O}_3$ as an electron transport layer buffer

Zhengyi Sun,\* Huiru Li, Yuan Li and Chaojun Sun



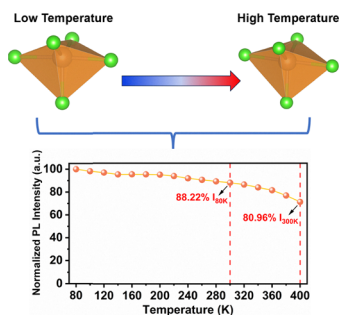
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### MnTi co-doping in $\text{Mg}_2\text{Al}_4\text{Si}_5\text{O}_{18}$ ceramics enhances $Q$ factor and improves temperature stability with a $\tau_f$ value closer to zero

Kexu Ding, Yuanxun Li, Liangchen Fan, Xinyan Liu, Huanhuan Wang, Jinjie Yan, Lin Xu, Wenhao Chen, Xiaohui Wang, Yuanming Lai, Jie Li and Yulong Liao\*

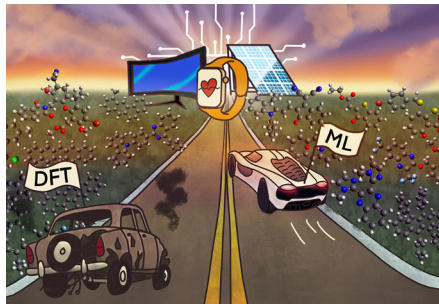
5990



### Local lattice distortion-driven highly efficient luminescence and thermal quenching resistance in $\text{Sb}^{3+}$ -doped hybrid indium chlorides

Qingyi Liu, Junliang Li, Qi Zhang, Dongfeng Xue,\* Lizhen Zhang, Yan Yu\* and Lingyun Li\*

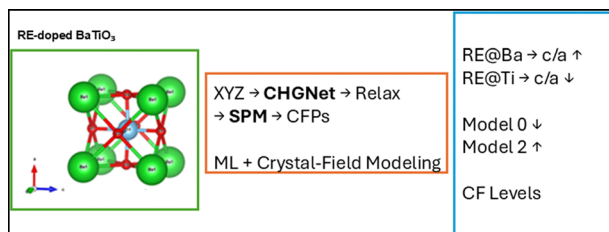
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### Learning the limits: how data, diversity, and representation control machine-learning predictions of reorganisation energy

Malin Zollner, Yashar Moshfeghi and Tahereh Nematiamram\*

6012



### Unveiling rare earth dopant configurations and crystal field analysis in tetragonal $\text{BaTiO}_3$ via machine learning and superposition modeling

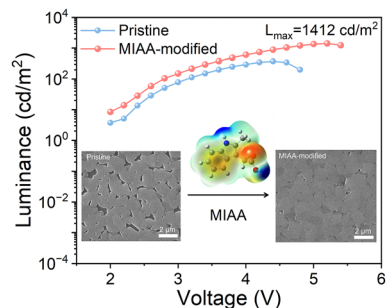
O. Yigit and M. Acikgoz\*



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### Indoleacetic acid-mediated suppression of oxidation and crystallization in tin perovskite LEDs

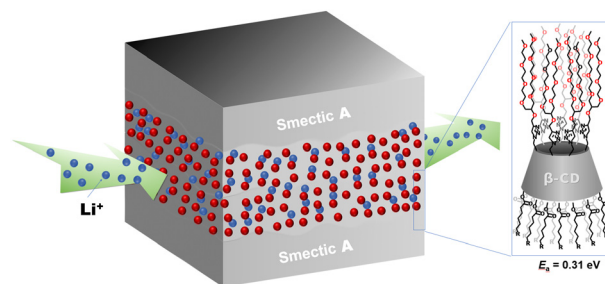
Lei Wang, Bing Han, Yu Lou, Haoran Wang,\*  
Chengjian Chen\* and Yang Bai



6041

### Balancing hydrophilic vs. hydrophobic volumes: a new approach to enhancing the ionic conductivity of amphiphilic cyclodextrins

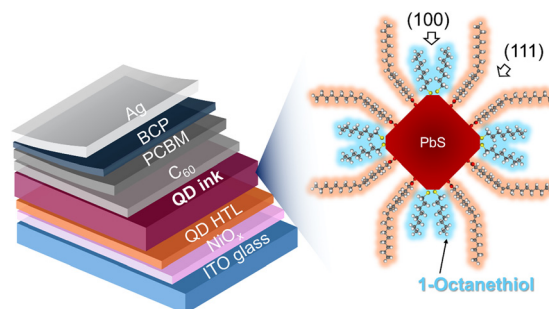
Jayar Espejo, Carson O. Zellmann-Parrotta,  
Diganta Sarkar, Austin Che, Vladimir K. Michaelis,  
Todd C. Sutherland, Vance E. Williams\* and  
Chang-Chun Ling\*



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### Ligand-directed growth control for high-performance short-wave infrared quantum dot photodetectors

Yihan Song, Youming Chen, Yiwen Li,\* Qian Chen,  
Andong Zhong, Haibo Zhu, Yihong Tang, Fan Fang,  
Junjie Hao, Haodong Tang, Jiayi Cheng, Yong Xia,\*  
Lin Song\* and Wei Chen\*



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### Tuning VO<sub>2</sub> phase stability by Cr doping: insights from photoemission and X-ray absorption spectroscopic investigations

Riya Dawn,\* Madhusmita Baral, Rajashri Urkude,  
Luo Ping, Zainul Aabdin,\* Biplab Ghosh and  
Vijay Raj Singh\*

