

# Journal of Materials Chemistry C

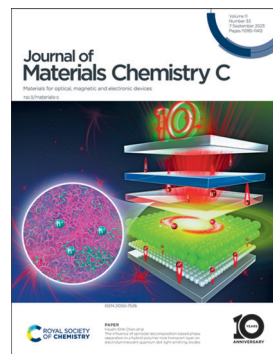
Materials for optical, magnetic and electronic devices

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## IN THIS ISSUE

ISSN 2050-7526 CODEN JMCCCX 11(33) 11095–11412 (2023)



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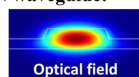
## PERSPECTIVE

11107

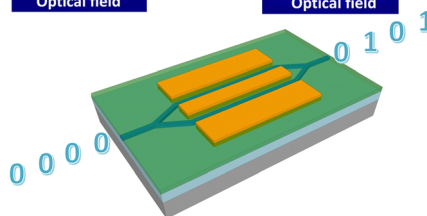
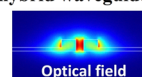
### Perspectives of thin-film lithium niobate and electro-optic polymers for high-performance electro-optic modulation

Mengke Wang, Yixin Chen, Shengpeng Zhang,  
Lianghai Dong, Hao Yao, Huajun Xu,\*  
Kaixin Chen\* and Jieyun Wu\*

TFLN waveguide:



Si-EOP hybrid waveguide:

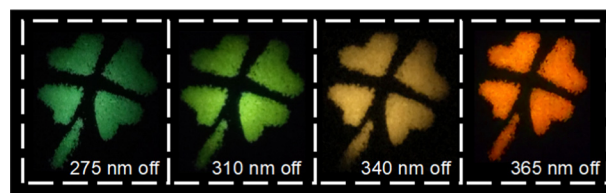


## COMMUNICATION

11123

### Single-component compounds with wide-range color-tunable ultralong organic phosphorescence

Weitao Sun, Xianyin Dai, Haiyan Ge, Xianfeng Meng,  
Guiyun Duan\* and Yanqing Ge\*



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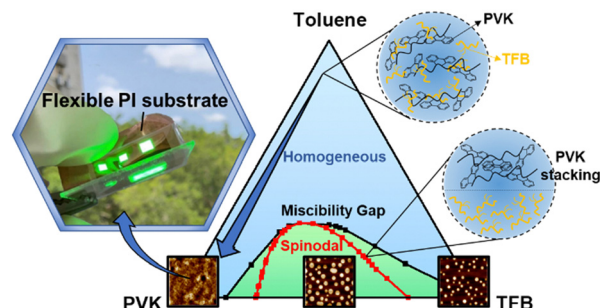


## PAPERS

11128

# The influence of spinodal decomposition-based phase separation in a hybrid polymer hole transport layer on electroluminescent quantum dot light-emitting diodes

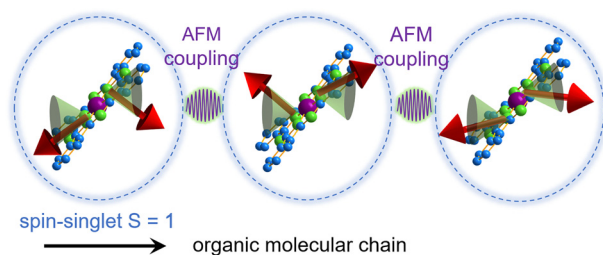
Minh-Son Hoang, Jie-Syuan Lu, Her-Yih Shieh and Hsueh-Shih Chen\*



11137

# Antiferromagnetic spin-1 large-*D* phase in organic spin-chain crystals

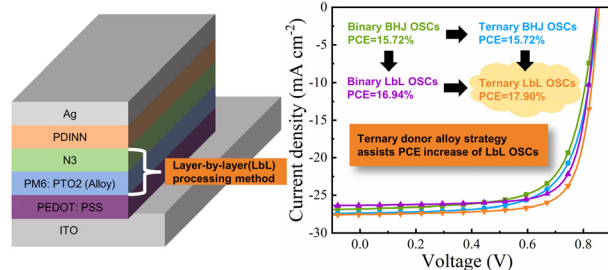
Zhihao Li, Yihao Wang, Yuyan Han, Meng Song, Jiangpeng Song, Junbo Li, Yongliang Qin, Langsheng Ling, Wei Tong, Yuxian Guo, Zan Du, Lei Zhang, Wenhua Zhang,\* Yimin Xiong\* and Liang Cao\*



11147

# Layer-by-layer processing enabled alloy-like ternary organic solar cells to achieve 17.9% efficiency

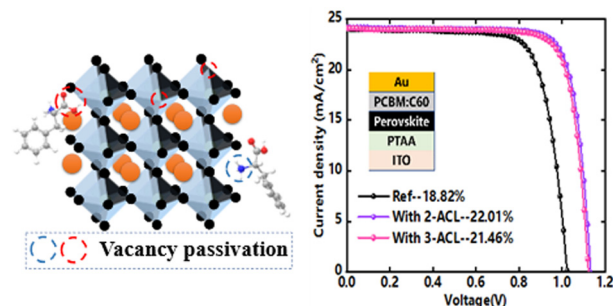
Jingwen Du, Ruobi Zhu, Luye Cao, Xinrui Li, Xiaoyang Du,\* Hui Lin, Caijun Zheng and Silu Tao\*



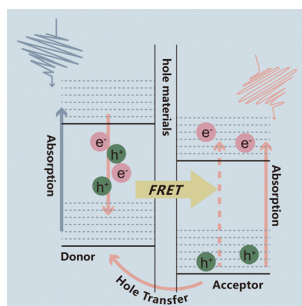
11157

# Boosting the performance of MA-free inverted perovskite solar cells via multifunctional amino acid additives

Chenhui Zhang, Chunjun Liang,\* Hongkang Gong, Jing Wang, Qi Song, Chao Ji, Fulin Sun, Ting Zhu, Xinghai Huang, Yuzhu Guo, Dan Li,\* Fangtian You and Zhiquan He\*



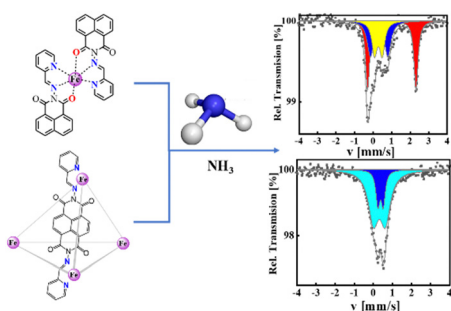
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### Probing fluorescence resonance energy transfer and hole transfer in organic solar cells using a tandem structure

Zhenmin Zhao, Shenglong Chu, Jie Lv, Qianqian Chen, Zhengguo Xiao, Shirong Lu and Zhipeng Kan\*

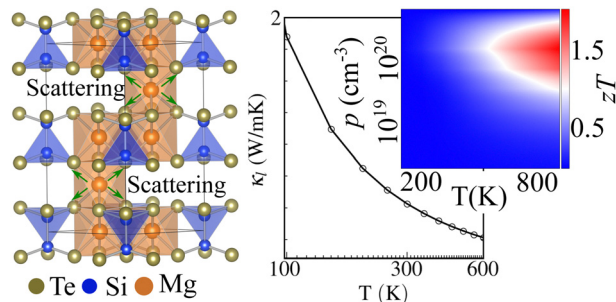
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### From a mononuclear $\text{Fe}^{\text{II}}\text{L}_2$ complex to a spin crossover $\text{Fe}^{\text{II}}_4\text{L}_6$ cage by symmetric ligand architecture modification: insights into the ammonia gas sensing mechanism

Weiyang Li, Aurelian Rotaru, Mariusz Wolff, Serhiy Demeshko, Franc Meyer and Yann Garcia\*

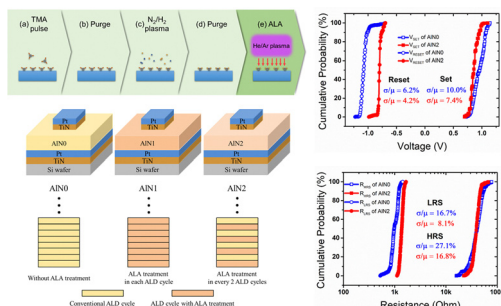
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### High thermoelectric figure of merit in p-type $\text{Mg}_3\text{Si}_2\text{Te}_6$ : role of multi-valley bands and high anharmonicity

Tribhuwan Pandey,\* François M. Peeters and Milorad V. Milošević

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### Atomic layer engineering on resistive switching in sub-4 nm AlN resistive random access memory devices

Chen-Hsiang Ling, Chi-Lin Mo, Chun-Ho Chuang, Jing-Jong Shyue and Miin-Jang Chen\*

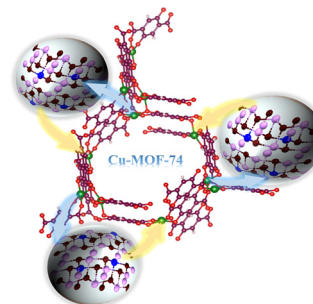


## PAPERS

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### Magnetic and optoelectronic modulation of Cu-MOF-74 films by quantum dots

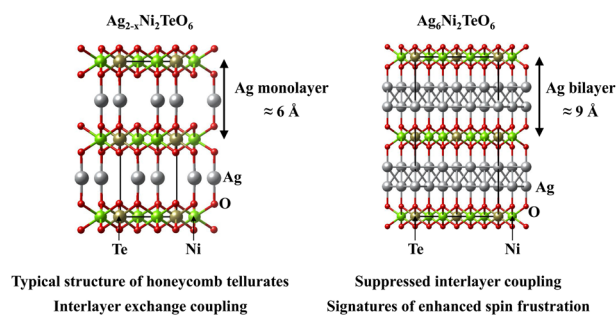
Zhimin Mao, Su-Yun Zhang, Duo Zhao, Xiaoliang Weng, Chenxu Kang, Hui Fang\* and Yu-Jia Zeng\*



11213

### Antiferromagnetic ordering and signatures of enhanced spin-frustration in honeycomb-layered tellurates with Ag bilayers

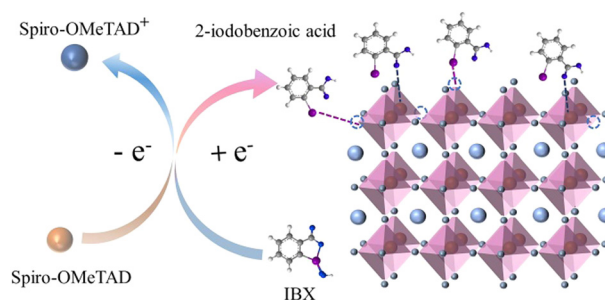
Sachio Komori,\* Kohei Tada,\* Noboru Taguchi, Tomoyasu Taniyama and Titus Masese\*



11218

### Introducing an alternative oxidant for Spiro-OMeTAD with the reduction product to passivate perovskite defects

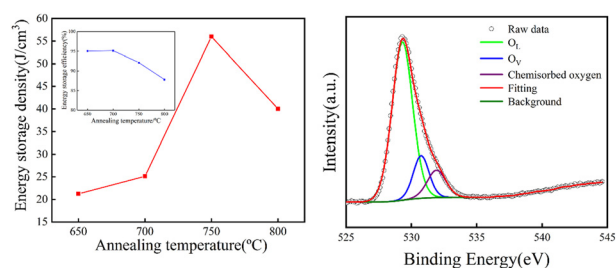
Xing Gao, Fei Wu,\* Ye Zeng, Kaixing Chen, Xiaorui Liu\* and Linna Zhu\*



11225

### Effect of annealing temperature on energy storage performance of Ba(Zr<sub>0.35</sub>Ti<sub>0.65</sub>)O<sub>3</sub> thin films under pure oxygen

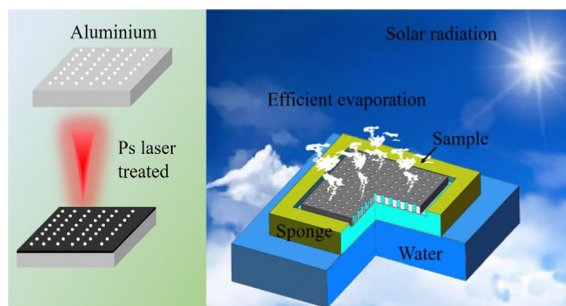
Yanji Sun, Zheng Sun,\* Xiang Li, Xipeng Yue, Yemei Han, Yangyang Xie, Kai Hu, Fang Wang and Kailiang Zhang





## PAPERS

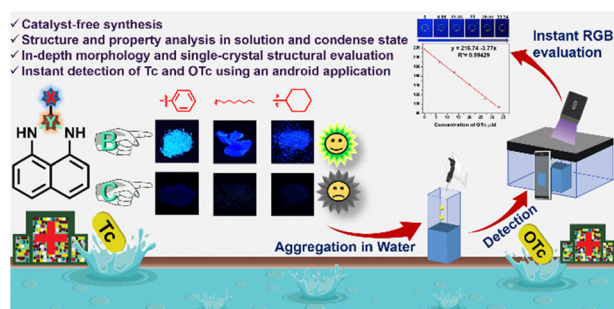
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### A salt pollution self-cleaning Al based solar desalination evaporator fabricated using a picosecond laser

Weizhen Li, Dongkai Chu,\* Qingwei Wang, Kai Yin,\* Honghao Zhang, Shuoshuo Qu and Peng Yao\*

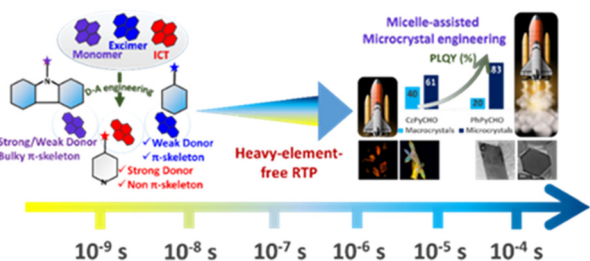
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### Deciphering the proficiency of aliphatic/aromatic functionality on a heteroatom embedded planar polycyclic core: towards advanced onsite detection of tetracycline and oxytetracycline

Retwik Parui, Nehal Zehra and Parameswar Krishnan Iyer\*

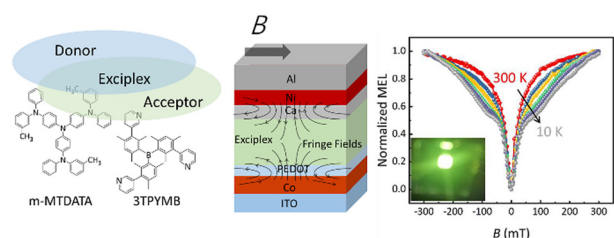
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### Heavy-element-free triplet accessibility in pyrene-core compounds at room temperature by microcrystal engineering

Pradip Pattanayak, Arnab Nandi, Sourav Kanti Seth and Pradipta Purkayastha\*

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### Manipulation of magneto-electroluminescence from exciplex-based spintronic organic light-emitting diodes

Chenghao Liu, Zhen Chen, Huitian Du, Yuan Yu, Junfeng Ren, Jihui Fan, Shenghao Han\* and Zhiyong Pang\*

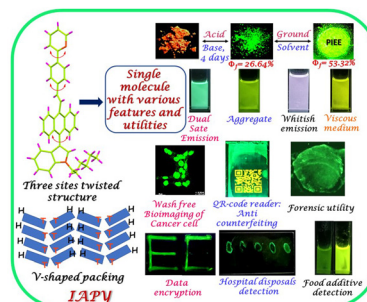


## PAPERS

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# Asymmetrical organic D- $\pi$ -A conjugate with 'V'-shaped crystal packing: quest to transcend the limits of photophysical properties and applications

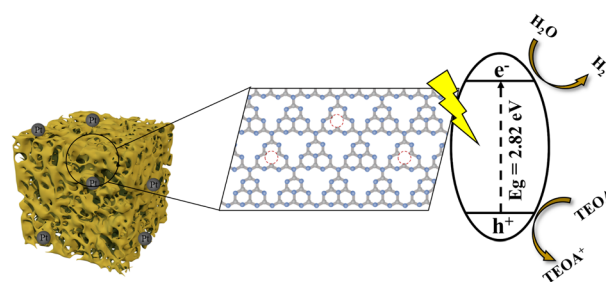
Shouvik Bhui, Purbali Chakraborty, Pandiyan Sivasakthi, Pralok K. Samanta, Perumal Yogeeswari and Manab Chakravarty\*



11283

# Nitrogen defects and porous self-supporting structure carbon nitride for visible light hydrogen evolution

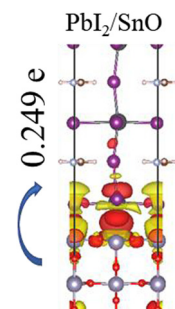
Jun Han, Fangzhou Wu, Zhongwei wang, Xiyu Chen, De Hu, Feng Yu, Yan Gao,\* Bin Dai\* and Wei Wang\*



11295

# Insights into the electron transport performance of the FAPbI<sub>3</sub>/SnO<sub>2</sub> interface

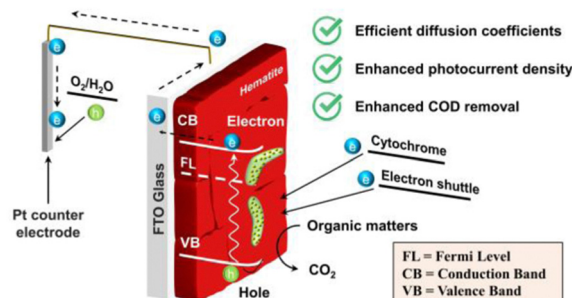
Xiangxiang Feng, Biao Liu,\* Mengqiu Cai and Junliang Yang



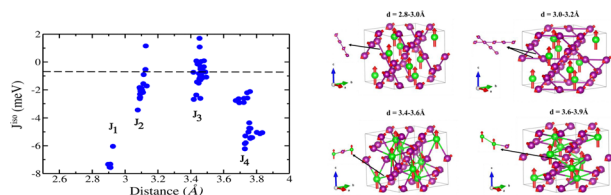
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# Photoenhanced interfacial electron transfer of a dual functional hematite biophotocathode

Chun Hong Mak, Yong Peng, Man Hin Chong, Li Yu, Minshu Du, Li Ji, Xingli Zou, Guizheng Zou, Hsin-Hui Shen,\* Shella Permatasari Santoso,\* Wenxin Niu, Fang-Fang Li and Hsien-Yi Hsu\*



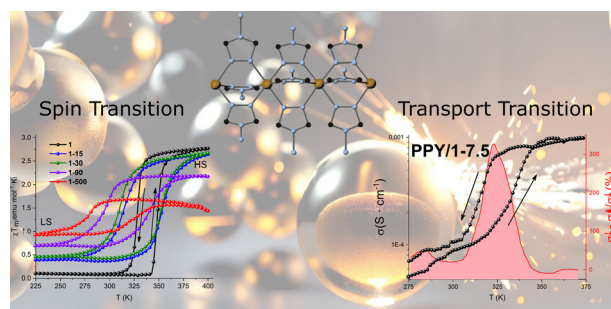
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### Switching of dominant magnetic exchange interactions between tetrahedral–octahedral and octahedral–octahedral sites in $(\text{Mn}_{1-x}\text{Cr}_x)_3\text{O}_4$ spinels

G. D. Dwivedi, Tsung-Wen Yen, S. M. Kumawat, C. W. Wang, D. Chandrasekhar Kakarla, A. Tiwari, H. D. Yang, S. M. Huang, C. M. Chung, S. J. Sun and H. Chou\*

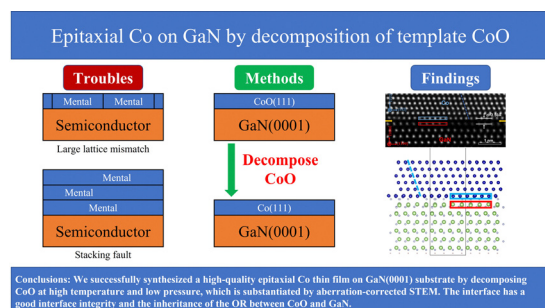
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### Magnetic and electrical bistability in hybrid composites of conducting organic polymers with $[\text{Fe}(\text{NH}_2\text{-trz})_3]_n[\text{SO}_4]_n$

David Nieto-Castro,\* Anna Weronika Graf, Francesc Gispert-Guirado and José Ramón Galán-Mascarós\*

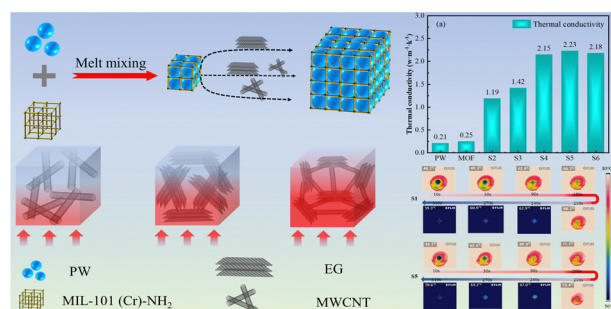
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### Epitaxial Co on GaN by decomposition of template CoO

Nianqi Qiu, Wandong Xing,\* Rong Yu and Fanyan Meng\*

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### Multifunctional MIL-101(Cr)- $\text{NH}_2$ /expanded graphite/multi-walled carbon nanotube/paraffin wax composite phase change materials with excellent thermal conductivity and highly efficient thermal management for electronic devices

Ruiqiang He, Min Fang,\* Jianduo Zhou, Hua Fei and Kai Yang



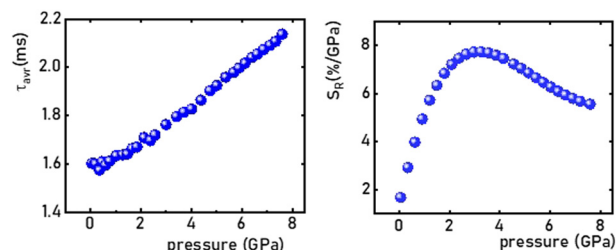


## PAPERS

11353

# Temperature invariant lifetime based luminescent manometer on Mn<sup>4+</sup> ions

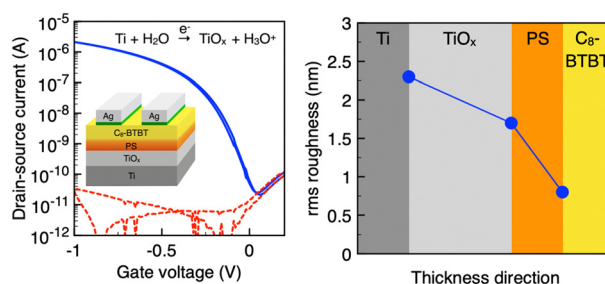
M. Pieprz, M. Runowski, P. Woźny, J. Xue and L. Marciniak\*



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# High-performance ultra-low-voltage organic field-effect transistors based on anodized TiO<sub>x</sub> dielectric and solution-sheared organic single crystals

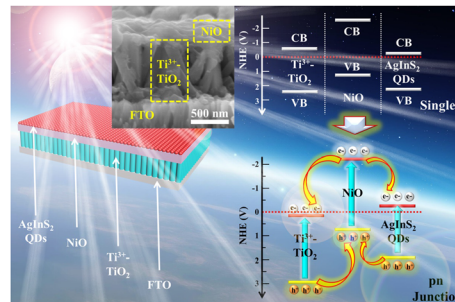
Bowen Geng, Feng Zhang, Xiaohai Ding, Lei Liu, Yan Chen, Shuming Duan,\* Xiaochen Ren\* and Wenping Hu\*



11369

# The transparent photovoltaic NiO/TiO<sub>2</sub> orderly nanoarray pn junction via synergism of AgInS<sub>2</sub> quantum dots and Ti<sup>3+</sup> self-doping

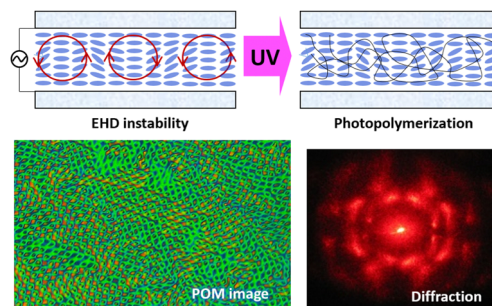
Lei Lu, Lixin Que, Yunlong Xu, Jun Cao, Jingjing Wang, Yingying Zheng, Lei Shi, Wenwu Zhong,\* Chaorong Li\* and Jiaqi Pan\*



11379

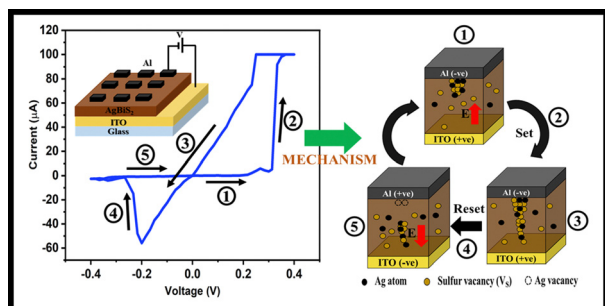
# Photo- and electro-controllable 2D diffraction gratings prepared using electrohydrodynamic instability in a nematic polymerizable mixture

Alexey Bobrovsky,\* Valery Shibaev, Boris Ostrovskii, Martin Cigl, Věra Hamplová and Alexej Bubnov



## PAPERS

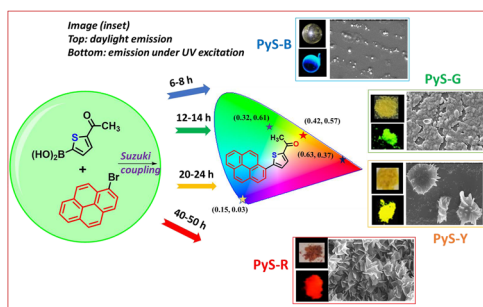
11392



### AgBiS<sub>2</sub> quantum dot based multilevel resistive switching for low power electronics

Harshit Sharma, Nitish Saini, Ajeet Kumar\* and Ritu Srivastava\*

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### Tunable emission in the visible range from a single organic fluorophore through time-controlled morphological evolution

Ram Prasad Bhatta, Vishal Kachwal, Clàudia Climent, Mayank Joshi, Pere Alemany, A. Roy Choudhury and Inamur Rahman Laskar\*

## CORRECTION

11409

### Correction: Gd–Er interaction promotes NaGdF<sub>4</sub>:Yb, Er as a new candidate for high-power density applications

Daniel Avram,\* Andrei A. Patrascu, Marian Cosmin Istrate and Carmen Tiseanu\*

