

# Journal of Materials Chemistry C

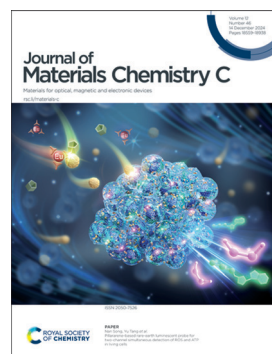
Materials for optical, magnetic and electronic devices

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ISSN 2050-7526 CODEN JMCCCX 12(46) 18559-18938 (2024)



### Cover

See Nan Song, Yu Tang *et al.*, pp. 18651-18659.

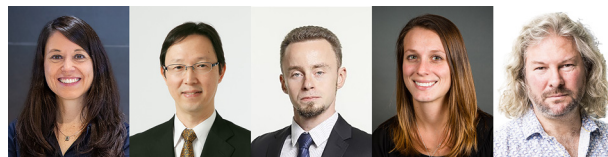
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## EDITORIAL

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### Photon upconversion materials collection

Eva Hemmer, Nobuo Kimizuka, Łukasz Marciniak, Lea Nienhaus and Timothy Schmidt

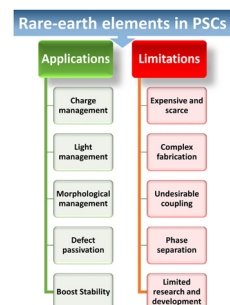


## REVIEWS

18575

### Tuning the performance of PSCs using rare-earth elements

Sajid Sajid, Salem Alzahmi,\* Nouar Tabet, Mohammad Y. Al-Haik, Mahmoud Abdel-Hafiez, Yousef Haik and Ihab M. Obaidat\*



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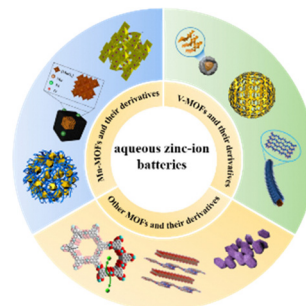
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## REVIEWS

18591

### Application of metal organic frameworks (MOFs) and their derivatives in the cathode materials of aqueous zinc-ion batteries

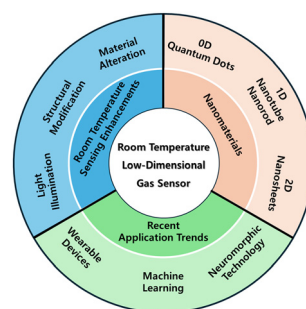
Pingchun Guo,\* Shisong Ouyang, Hedong Jiang, Jiake Li, Hua Zhu and Yanxiang Wang



18609

### Room-temperature gas sensors based on low-dimensional nanomaterials

Young-Woo Jang, Jeong-Wan Jo, Sung Kyu Park\* and Jaehyun Kim\*

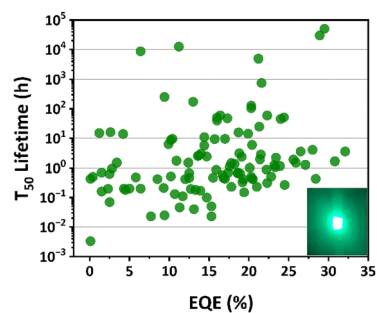


## PERSPECTIVE

18628

### Has the perovskite LED stability problem been solved?

Muhammad Umair Ali, Atta Ur Rehman and Aleksandra B. Djurišić\*

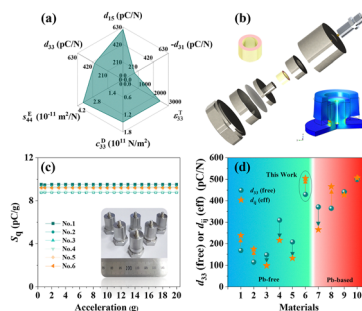


## COMMUNICATION

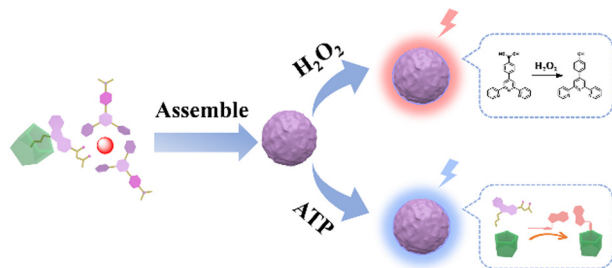
18639

### Shear-structured piezoelectric accelerometers based on KNN lead-free ceramics for vibration monitoring

Yi Ding, Yu Wang, Wenbin Liu, Yongqi Pan, Ping Yang, Dechao Meng,\* Ting Zheng\* and Jiagang Wu\*



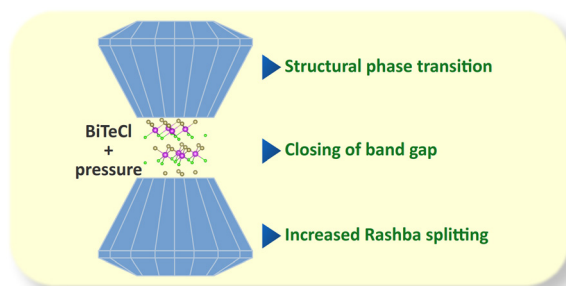
18651



### Pillararene-based rare-earth luminescent probe for two-channel simultaneous detection of ROS and ATP in living cells

Shanshan Bao, Yanan Guo, Dandan Lv, Congcong Wang, Yao Kou, Yuchen Yang, Nan Song\* and Yu Tang\*

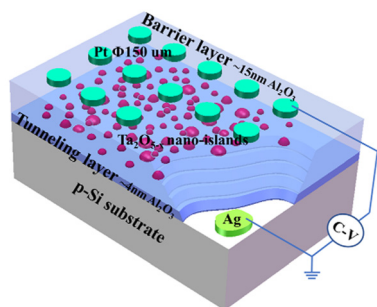
18660



### Rashba asymmetric topological insulator BiTeCl under compression: equation of state, vibrational features and electronic properties

E. Bandiello,\* H. H. Osman, J. A. Sans, P. Rodríguez-Hernández, A. Muñoz, J. González-Platas, C. Popescu, E. Greenberg, V. Prakapenka, C. Drasar, A. H. Romero and F. J. Manjón\*

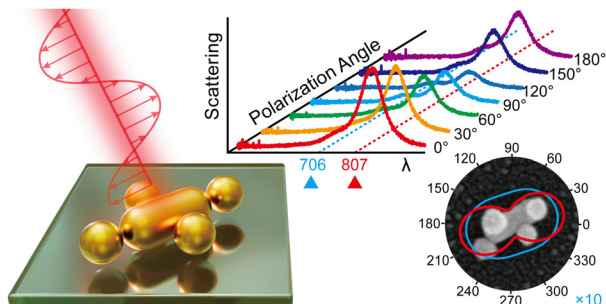
18676



### Atomic layer-deposited Ta<sub>2</sub>O<sub>5-x</sub> nano-islands for charge trapping memory devices

Song Sun, Li Gao, Ping Han, Lin Zhu, Wei-Min Li and Ai-Dong Li\*

18683



### Polarization-dependent plasmon coupling between Au nanorods and Au nanospheres in core-satellite nanoassemblies

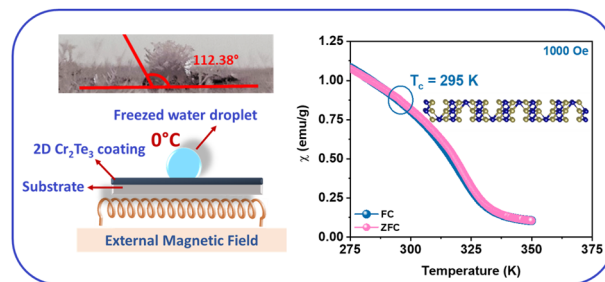
Ina Jeong, Seokhyun Yun and Sangwoon Yoon\*



18691

### Non-thermal magnetic deicing using two-dimensional chromium telluride

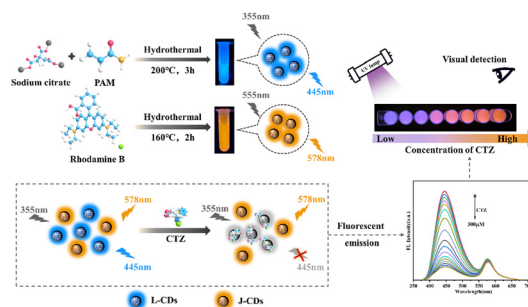
Chinmayee Chowde Gowda, Alexey Kartsev,\*  
Nishant Tiwari, Alexander A. Safronov, Prafull Pandey,  
Ajit K. Roy, Pulickel M. Ajayan, Douglas S. Galvão\* and  
Chandra Sekhar Tiwary\*



18704

### A dual-emission ratiometric fluorescent sensor L/J-CDs with specific response to cetirizine hydrochloride in environmental water samples

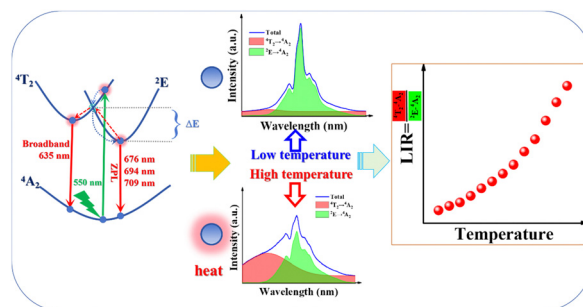
Zhixiang Li, Juandi Li, Jingjing Chen, Shuaijing Du\* and  
Yingxiang Du\*



18716

### Enhancement of $^4T_2 \rightarrow ^4A_2$ with temperature via energy transfer of the optical thermometer $Mg_5Al_7O_{16}:Cr^{3+}$

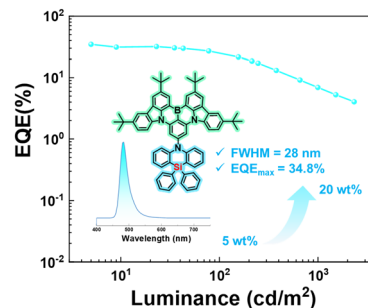
Yang Wei, Ye Jin,\* Yifei Chen, Weixin Hu,  
Chongzhou Wang, Zhihui Zhang, Fancheng Meng,  
Fuxiang Huang, Li Ma, Xiao-jun Wang and Haishen Ren



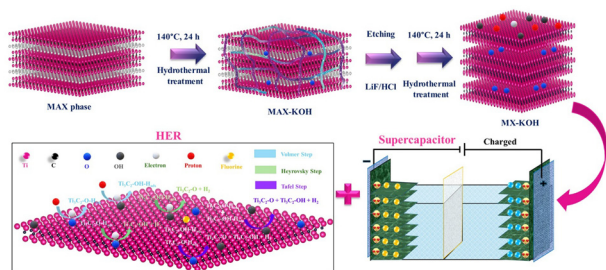
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### Silicon-based peripheral steric donor modifications for a high-efficiency multi-resonance thermally activated delayed fluorescence emitter

Hai-Tian Yuan, Yue-Jian Yang, Zhe-Hong Yu, Qi Zheng,  
Hong-Yan Yan, Yu Wang, Dong-Ying Zhou,\*  
Liang-Sheng Liao and Zuo-Quan Jiang\*



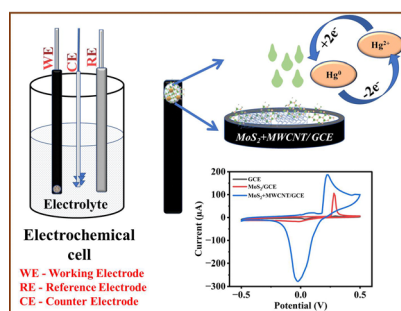
18732



### Supercapacitors with enhanced energy storage and hydrogen evolution reaction performance via sequential alkali-modified MXenes

Sunil Kumar,\* Syed Muhammad Zain Mehdi, Muzahir Ali, Sung Ryul Choi, Seojeong Yoo, Minwook Kim, Muhammad Suleman, Tej Singh and Yongho Seo\*

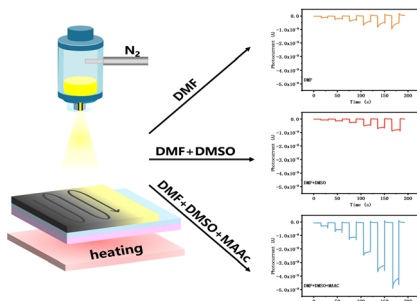
18746



### MoS<sub>2</sub>@MWCNT modified glassy carbon electrode for electrochemical mercury(II) ion sensors

Jai Mishra, Nipun Sharma, Sumit Kumar, Chayan Das, Amit Kumar, Monika Kwoka, Satyajit Sahu and Mahesh Kumar\*

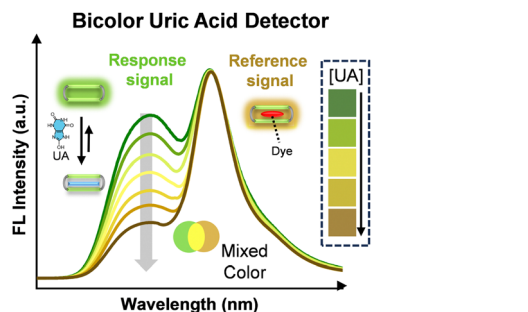
18757



### Enhanced sensitivity in self-powered Dion–Jacobson perovskite X-ray detectors via a ternary-solvent-ink approach

Liting Tao, Li Ding, Yuyang Li, Hui Liu, Meiping Gao, Deren Yang and Yanjun Fang\*

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### Tetracationic macrocycles form highly stable inclusion complexes with uric acid enabling solution-phase and paper-strip bicolor colorimetric detection of hyperuricemia

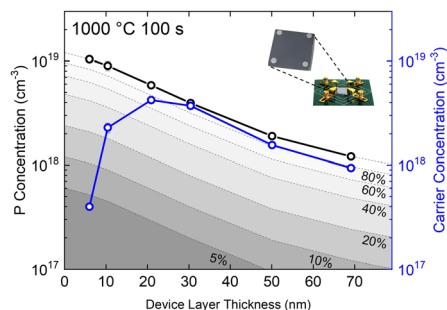
Jian-Da Sun, Jiangshan Zhang, Sheng-Yi Zhuang, Hui Wang, Wei Zhou, Zhan-Ting Li\* and Dan-Wei Zhang\*



18772

## Donor incomplete ionization and mobility enhancement in ultra-thin silicon-on-insulator films doped by phosphorus end-terminated polymers

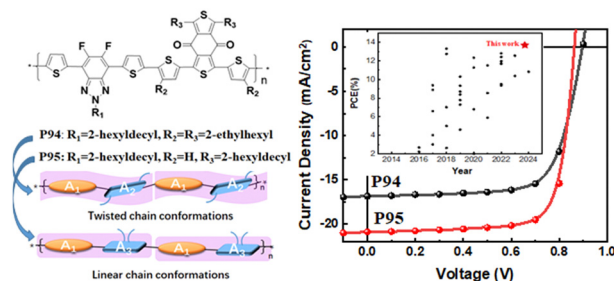
Andrea Pulici, Stefano Kuschlan, Gabriele Seguni, Marco De Michielis, Riccardo Chiarcos, Michele Laus, Marco Fanciulli and Michele Perego\*



18779

## Chain conformation and aggregation structure regulation of an efficient acceptor–acceptor type photovoltaic polymer

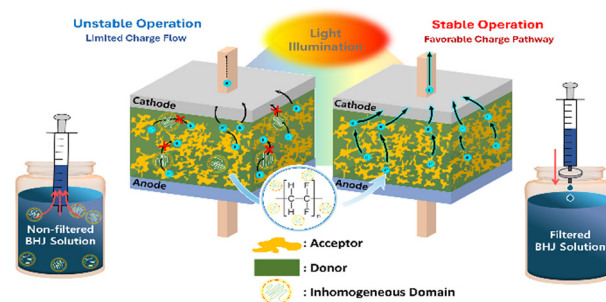
Xiaoman Gui, Jianling Ni, Han Shen, Bing Zheng, Shisong Sun, Panfeng Gao and Lijun Huo\*



18788

## Homogeneous bulk heterojunction domains with continuous charge pathway via hydrophobic membrane filtration for stable photo and dark current operations

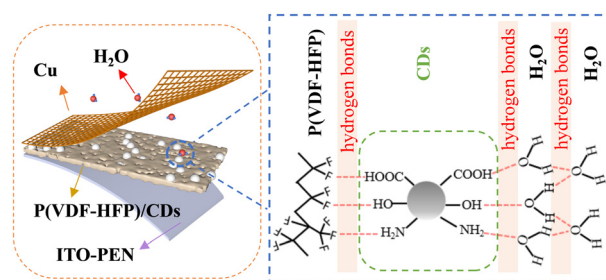
Hyunguk Park, Jihyun Lim, Byung Gi Kim, Woongsik Jang and Dong Hwan Wang\*



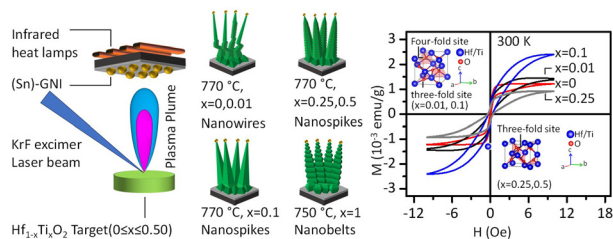
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## Hydrophilic carbon quantum dots assisting porous P(VDF–HFP) film for self-powered humidity sensing with high sensitivity and low hysteresis

Ping Huang, Shunjian Xu,\* Lei Liu, Kai Fu, Haiyan Fu, Kaixin Shao, Qi Huang, Zonghu Xiao, Jianhua Huang and Hong Jin



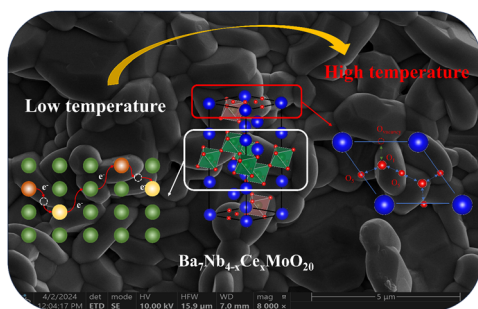
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### Novel single-crystalline $\text{Hf}_{1-x}\text{Ti}_x\text{O}_2$ 1D nanostructures with room-temperature ferromagnetism

Mahdi Beedel, Joseph Palathinkal Thomas, Hanieh Farkhondeh, Lei Zhang, Nina F. Heinig and Kam Tong Leung\*

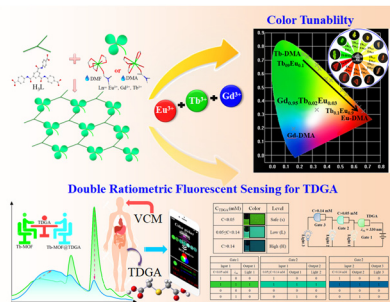
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### $\text{Ba}_7\text{Nb}_{4-x}\text{Ce}_x\text{MoO}_{20}$ : structural and electrical property studies of a novel NTC thermal ceramic

Jinyang Li, Wenye Deng, Yan Xue, Ni Ai, Kai Ding, Xianghui Chen, Weiwei Meng, Pengjun Zhao, Aimin Chang and Yongxin Xie\*

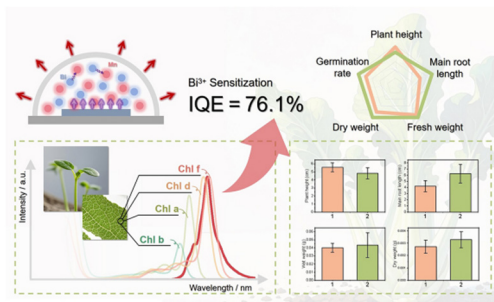
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### Amide-functionalized lanthanide metal–organic frameworks: smart double ratiometric fluorescence sensing of thiodiglycolic acid and tunable luminescence

Xu Zhang, Jiahui Yu, Xin Li, Chengqi Jiao,\* Yanyu Zhu,\* Hanwen Zheng and Zhengang Sun\*

18840



### Efficient sensitization of rare-earth-free $\text{Mn}^{4+}$ -activated antimonate phosphor: enabling intense far-red emission for agricultural lighting

Ziyao Wang,\* Yang Li, Xinyao Yang, Baochen Wang, Ruiyu Mi and Yangai Liu\*

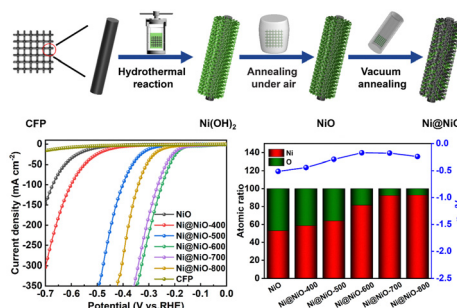




18849

### *In situ* controllable construction of Ni@NiO Schottky heterojunctions for electrocatalytic hydrogen evolution

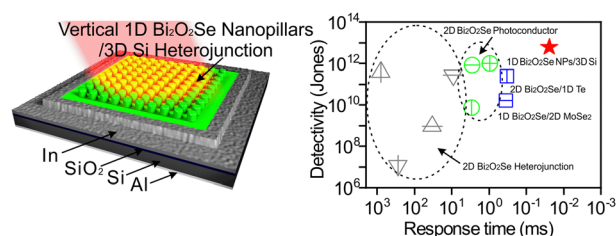
Rui Li, Ziyi Pu, Rongxiu Zhou, Yuanzhi Li, Yexiong Huang, Shuaiqi Li, Jie Yang,\* Dingke Zhang\* and Mingyu Pi\*



18856

### Mixed-dimensional vertical Bi<sub>2</sub>O<sub>2</sub>Se nanopillars/Si heterojunctions with the light confinement effect for high-performance photodetection

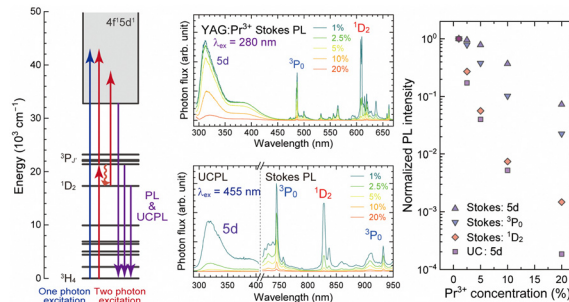
Zhibin Shao,\* Ming Wu, Kai Wu, Xingxing Hong, Lei Wang, Jiangfeng Gong, Meng Xu, Ke Li, Cheng Zhang and Hong Wang\*



18865

### Concentration quenching behavior of Stokes and upconversion luminescence for Pr<sup>3+</sup>-doped Y<sub>3</sub>Al<sub>5</sub>O<sub>12</sub>

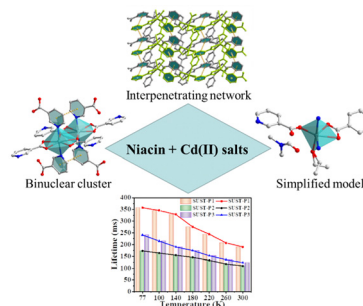
Yuuki Kitagawa,\* Hitomi Nakamura and Kenji Shinozaki



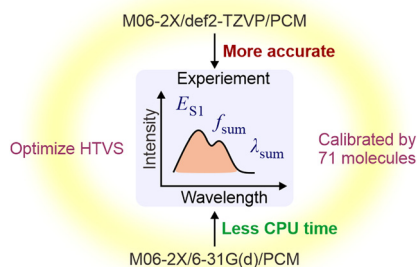
18877

### Ultralong room temperature phosphorescence in Cd-MOFs regulated by the multimode coordination configuration of niacin ligand

Zheng Wang, Chen-Qi Li, Jia-Yu Zhu, Xin-Qi Chen, Meng-Yang Li and Dan Wang\*



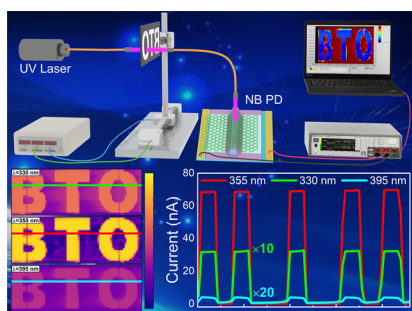
18886



### Calibration of several first excited state properties for organic molecules through systematic comparison of TDDFT with experimental spectra

Xia Wu,\* Xiaoyu Xie\* and Alessandro Troisi\*

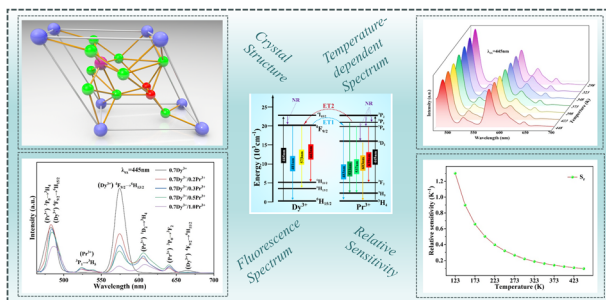
18893



### A power-free, filter-free and high-performance narrowband ZnO/BaTiO<sub>3</sub>/GaN heterojunction-based ultraviolet photodetector obtained by synergetic plasmonic and ferroelectric effects

Kai Tang, Shulin Sha, Maosheng Liu, Mengxin Yu, Peng Wan, Caixia Kan, Daning Shi\* and Mingming Jiang

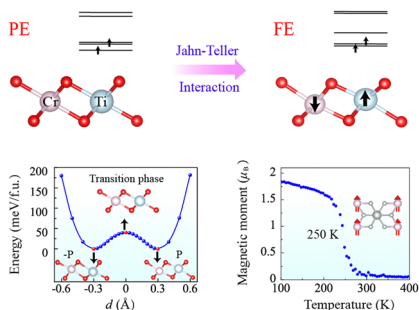
18905



### Highly sensitive temperature sensing of Na(Y<sub>1.5</sub>Na<sub>0.5</sub>)F<sub>6</sub> glass-ceramics based on Dy<sup>3+</sup>/Pr<sup>3+</sup> energy transfer

Kaikai Ren, Di Wei, Xinyi Cai, Liang Ke, Junyi Ying, Chaohui Fu and Yuepin Zhang\*

18917



### Ferroelectric–ferromagnetic multiferroicity driven by 3d-electrons in a TiCrO<sub>4</sub> monolayer

Haojin Wang, Haitao Liu and Yuanchang Li\*

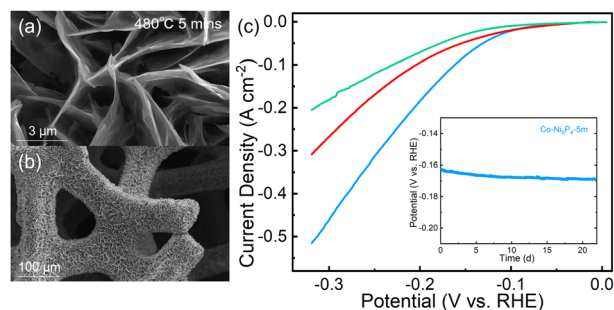


## PAPERS

18925

### Fast synthesis of nickel phosphide nanosheets for ultra-stable hydrogen evolution in seawater splitting

Weiwu Chen, Feng Lin, Chong Wang, Zhiming M. Wang and Zhaojun Qin\*



## CORRECTION

18934

### Correction: Effective strategies for current boosting in a mesa-shaped In–Ga–Zn–O vertical-channel thin-film transistor with a short-channel length of 40 nm

Chae-Eun Oh, Young-Ha Kwon, Nak-Jin Seong, Kyu-Jeong Choi and Sung-Min Yoon\*

