

Journal of Materials Chemistry C

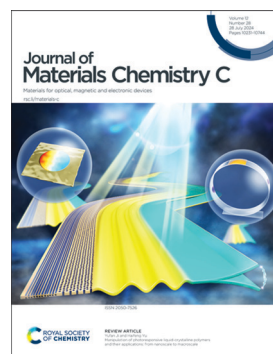
Materials for optical, magnetic and electronic devices

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IN THIS ISSUE

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Cover

See Yufan Ji and Haifeng Yu, pp. 10246-10266. Image reproduced by permission of Haifeng Yu from *J. Mater. Chem. C*, 2024, 12, 10246.

EDITORIAL

10244

Perovskites: from materials science to devices

Małgorzata Kot,* Chittaranjan Das, Clara Patricia Aranda Alonso and Daniel Prochowicz

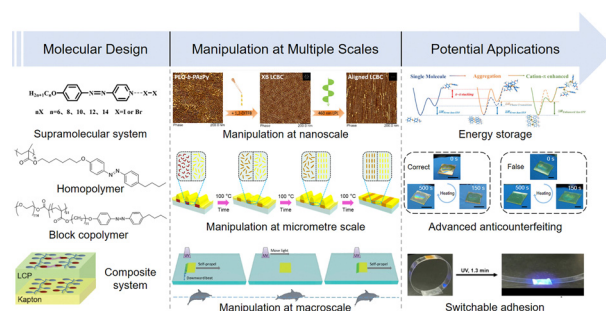


REVIEWS

10246

Manipulation of photoresponsive liquid-crystalline polymers and their applications: from nanoscale to macroscale

Yufan Ji and Haifeng Yu*



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Elemental answers

REVIEWS

10267

Recent advances in lead-free halide perovskites: from synthesis to applications

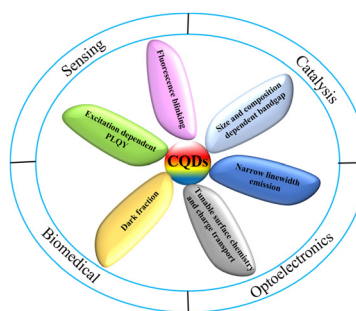
Yunuan Wang, Jianxiang Liu, Yujun Liu, Shaopeng Li, Xiulai Xu* and Zhidong Lou*



10330

Advancements in semiconductor quantum dots: expanding frontiers in optoelectronics, analytical sensing, biomedicine, and catalysis

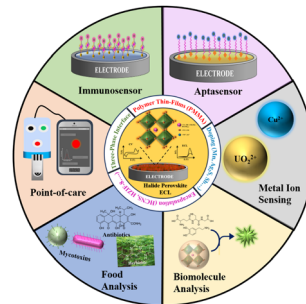
Jiban Mondal, Rohan Lamba, Yukta Yukta, Rohit Yadav, Ram Kumar, Balaram Pani* and Bholey Singh*



10390

A review on perovskite-based nanocrystals as potential electrochemiluminescence emitters: challenges and future opportunities

Indhu Leka Kottaiveedu Sivakumar, Vaishnavi B. Shetty, Selvaraj Paramasivam, Maithili K. Rao, Selvakumar Muthu and Shanmugam Senthil Kumar*

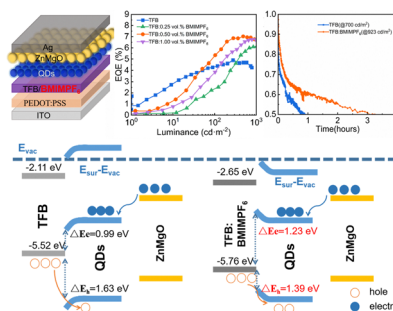


PAPERS

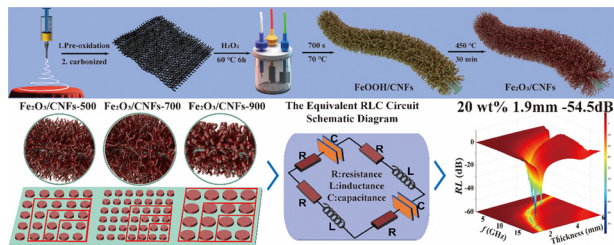
10408

Enhancing the efficiency and stability of ZnSe pure blue quantum dot light-emitting diodes via ionic liquid doping

Lihua Lin, Xiaoxue Ye, Zhiqi Luo, Weiguo Chen, Tailiang Guo, Hailong Hu and Fushan Li*



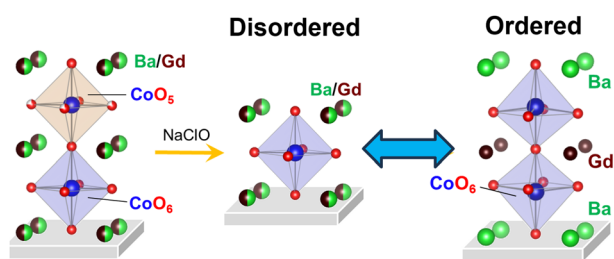
10417



An equivalent RLC circuit loss mechanism introduced by Fe₂O₃ nanoneedle arrays towards high-performance electromagnetic wave absorption materials

Jingshen Xu, Na Lu, Kefan Shi, Yuelin Zhao, Mengwei Yuan and Genban Sun*

10428

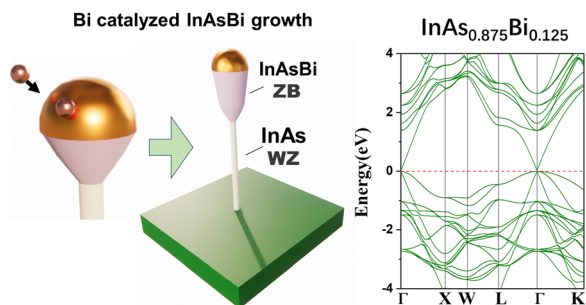


Changes in magnetism and electrical conductivity

Cation-placement control in double-perovskite GdBaCo₂O₆ and its impact on magnetism *via* spin-state modification

Tsukasa Katayama,* Kento Magara, Shiro Sakai, Yijie Zeng, Akira Chikamatsu and Tetsuya Hasegawa

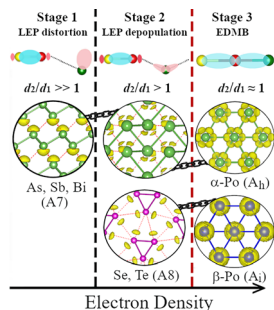
10437



The roles of Bi in InAs and InAsBi nanostructure growth

Bijun Zhao, Xutao Zhang,* Lei Ao, Nian Jiang, Suixing Shi, Zifan Huo, Yanhui Zhang, Ruixuan Yi, Jin Zou, Xuetao Gan* and Pingping Chen*

10447



Electron-deficient multicenter bonding in pnictogens and chalcogens: mechanism of formation

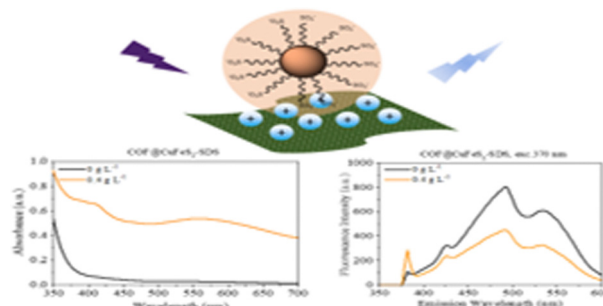
Hussien H. Osman,* Alberto Otero-de-la-Roza, P. Rodríguez-Hernández, Alfonso Muñoz and Francisco J. Manjón*



10475

Electron transfer and energy exchange between a covalent organic framework and CuFeS₂ nanoparticles

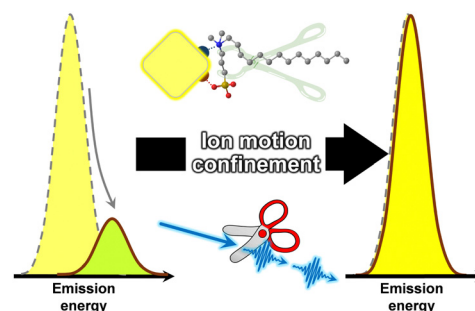
Panagiota Bika, Vasileios K. Tzitzios, Elias Sakellis, Spyros Orfanoudakis, Nikos Boukos, Saeed M. Alhassan, Polychronis Tsipas, Vasileios Psycharis, Thomas Stergiopoulos* and Panagiotis Dallas*



10487

Overcoming the luminescence instability of colloidal mixed-halide perovskite quantum dots through ion motion confinement

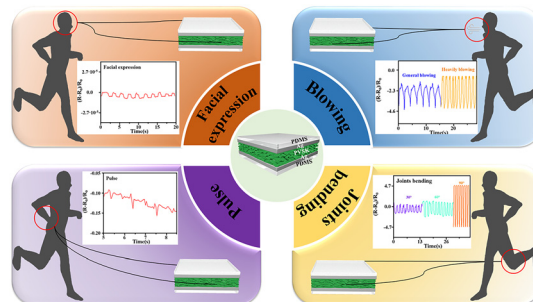
Xinli Wang, Yang Sun, Jie Gao, Xiao Huang, Dandan Cao, Xiaowen Gao, Hao-Yi Wang, Qi Li, Yi Wang,* Li-Min Fu, Xi-Cheng Ai, Dongsheng Xu and Jian-Ping Zhang*



10494

A flexible piezoresistive pressure sensor based on a perovskite MAPbBr₃ nanocrystal-embedded polymer composite

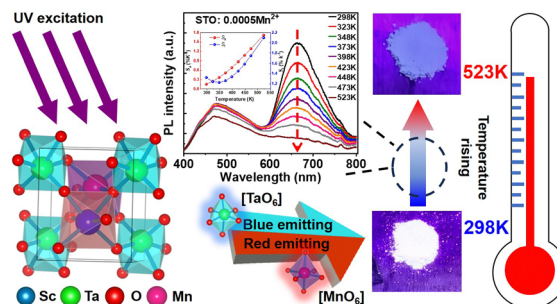
Yuyan Zhuang, Ruiqi Li, Mingzhi Jiao, Xinjian He,* Xiuquan Gu* and Sheng Huang*



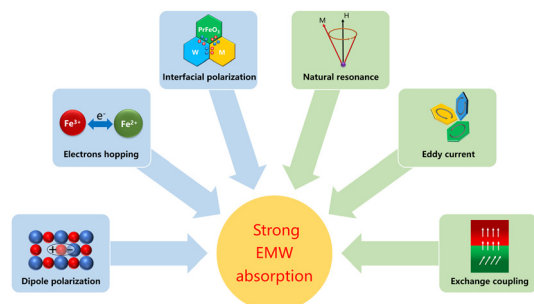
10504

A novel Mn²⁺ doped ScTaO₄ dual-emitting phosphor for high temperature optical thermometry

Jingshan Hou,* Zhiyu Qin, Jianghua Wu, Tong Li, Langping Dong, Ganghua Zhang, Guoying Zhao, Yufeng Liu, Haijie Chen* and Yongzheng Fang*



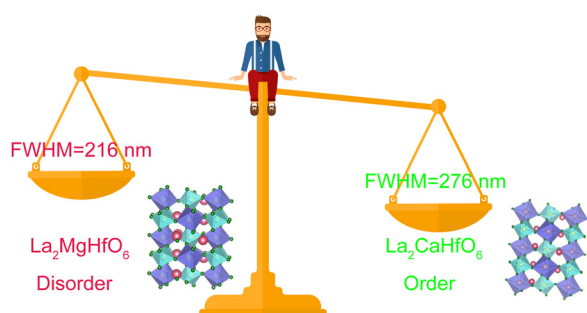
10513



Enhanced X and Ku band microwave absorption powered by a magnetic–dielectric synergistic effect in Pr-doped M/W composite hexaferrites

Xiaoqiang Xiong, Xiaodong Jing,* Zitao Chen, Qianqian Zhao, Zuoguang Li, Xi Yang, Qun Wang, Tongyun Zhao* and Huayang Gong

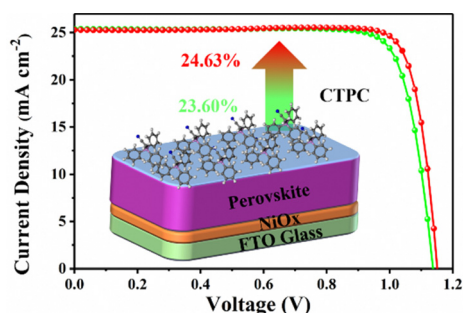
10532



Abnormal spectral broadening of ordered-structure near-infrared phosphor $\text{La}_2\text{CaHfO}_6:\text{Cr}^{3+}$

Yulei Zhao, Xudong Wang, Qihao Wang, Tianliang Zhou,* Yousan Chen, Jianxing Xu, Xueyuan Tang* and Rong-Jun Xie*

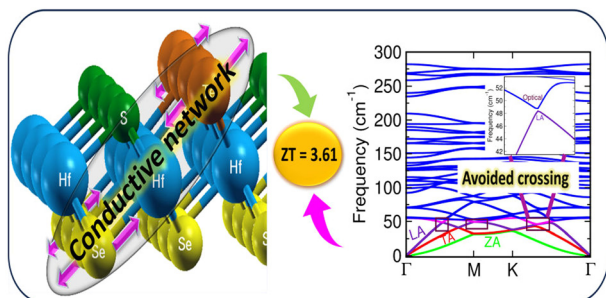
10540



Achieving a high-quality active film through surface passivation to enhance the stability of inverted perovskite solar cells

Ming Chen, Zhonghua Dai, Nan Yan, Yang Cao, Yin Yuan, Jiafan Zhang, Danyang Qi, Lanxiang Meng, Shengzhong (Frank) Liu* and Jiangshan Feng*

10548



Emergence of promising n-type thermoelectric material through conductive network and strong phonon softening

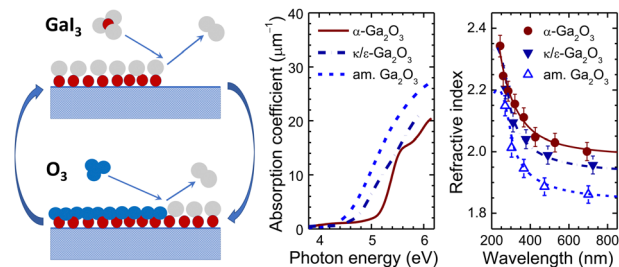
Jipin Peter, Tanu Choudhary and Raju K Biswas*



10562

Optical properties of Ga₂O₃ thin films grown by atomic layer deposition using GaI₃ and O₃ as precursors

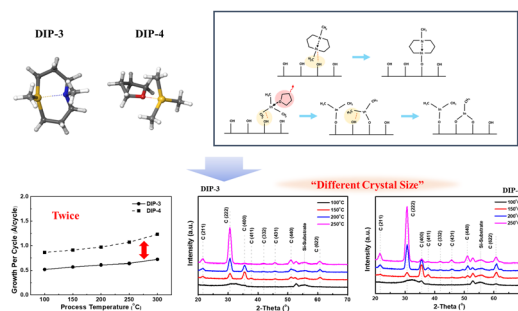
Lauri Aarik,* Hugo Mändar, Arne Kasikov, Aivar Tarre and Jaan Aarik



10575

Unveiling growth mechanisms of PEALD In₂O₃ thin films with amide-based versus alkyl-based novel indium precursors

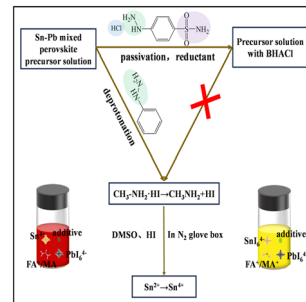
Gyeong Min Jeong, Hae Lin Yang, Ara Yoon, Yoon-Seo Kim, Sangick Lee, Yonghee Kwone, Sangyong Jeon, Youngjae Im and Jin-Seong Park*



10585

Selection of phenyl hydrazine derivatives as an Sn⁴⁺ reductant for tin–lead perovskite solar cells

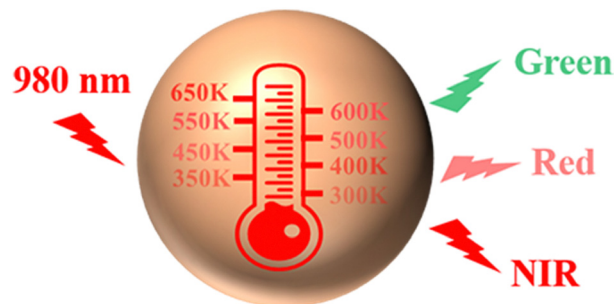
YanJun Xing, Jiaying Xiong, Qiuxiang Wang, Changlei Wang,* Like Huang, Xiaohui Liu, Qidong Tai, Yuejin Zhu and Jing Zhang*



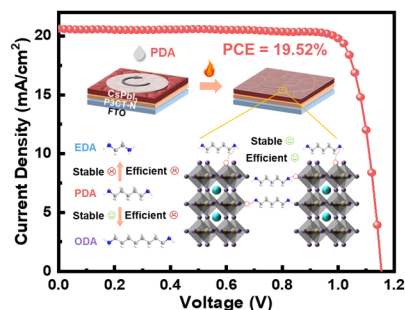
10592

Defect band enhanced Ca₉Y(VO₄)₇: Yb³⁺/Er³⁺/Sr²⁺ phosphor upconversion luminescence for multimode optical temperature measurement

Junshan Hu,* Bin Duan,* Yao Kuang, Yuxiang Wu, Yongqiang Li, Wei Jin, Fengyi Wang and Changchun Ding



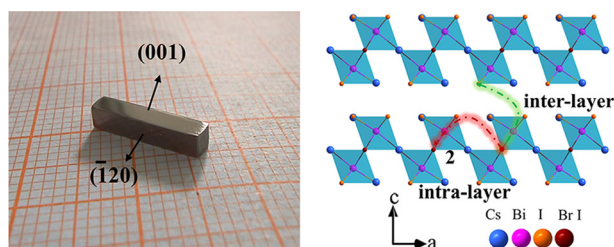
10604



Tailoring the molecular size of alkylamine modifiers for fabricating efficient and stable inverted CsPbI₃ perovskite solar cells

Zhongyu Liu, Hongwei Wang, Haijun Han, Hong Jiang, Ning Liu, Jianwei Wang, Jing Zhang, Tian Cui* and Xiaohui Liu*

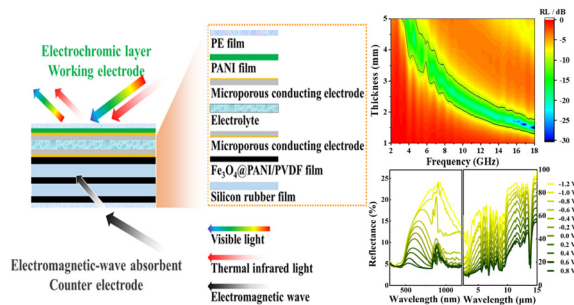
10613



Two-dimensional lead-free perovskite Cs₃Bi₂I_{8.3}Br_{0.7} single crystals with anisotropic ion migration and hard X-ray responses

Xiang Li, Guodong Zhang,* Yunqiu Hua, Xue Sun, Jiaxin Liu, Hongjie Liu, Zhongjie Yue, Zhongjun Zhai, Haibing Xia and Xutang Tao*

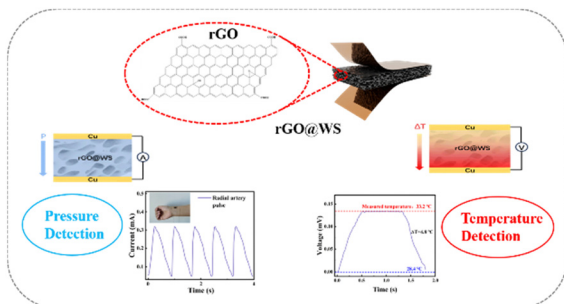
10621



VIS-IR electrochromic device with electromagnetic wave absorption function based on a Fe₃O₄@PANI composite material

Shengwei Tang, Junlong Niu, Changle Gu, Hengzhi Zhang, Rongzong Zheng, Xiaolong Weng* and Chunyang Jia*

10635



An eco-friendly wood sponge-based multifunctional pressure and temperature sensor for electronic skin

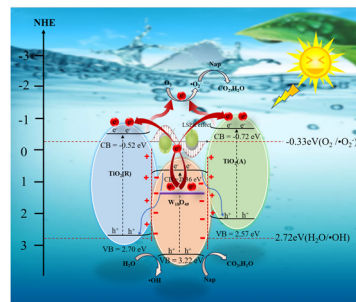
Jie Liang, Huinan Zhang, Qingchao Zhang, Yanli Liu,* Bo Li, Junbin Zang, Xiyuan Cao, Zhidong Zhang,* Libo Gao and Chenyang Xue



10646

Dual-defected pine-needle $W_{18}O_{49}$ - TiO_2 (R)- TiO_2 (A) heterojunctions for the complete elimination of naphthalene

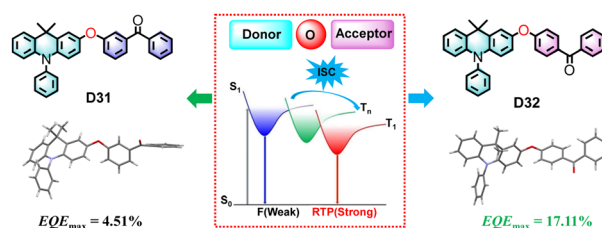
Zhiwei Zhou, Jingbo Li, Yaxian Zhang, Lulu Wang, Xiaojuan Qin and Wenliang Wu*



10660

Connection position-induced aggregation-diminished and aggregation-enhanced organic room temperature electrophosphorescence

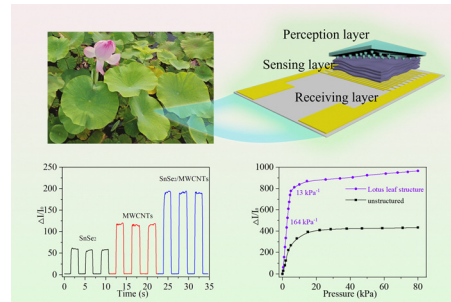
Jiaxin Lou, Lulin Xu, Wanting Ju, Dong Wang, Tianlin Cheng, Weiguo Zhu, Ning Su* and Junqiao Ding*



10669

High sensitivity $SnSe_2$ /MWCNTs flexible pressure sensors based on a lotus leaf biomimetic microstructure for electronic skin

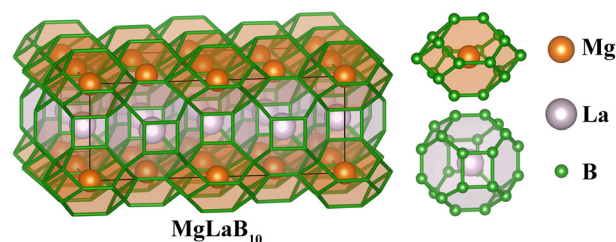
Chunqing Yang, Weiwei Wang,* Bao Zhang, Wenzhe Liu, Hao Zhang and Dongzhi Zhang*



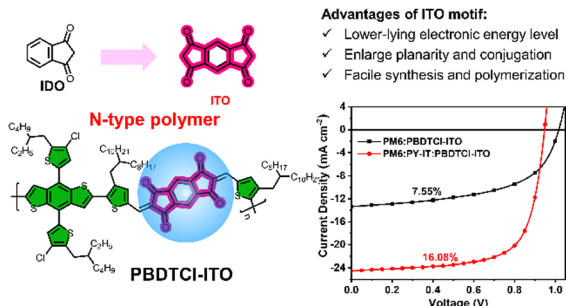
10678

Unveiling the influence of the boron clathrate lattice on superconductivity in a ternary Mg-La-B system

Yiming Zhang, Meiling Xu,* Jian Hao and Yinwei Li*

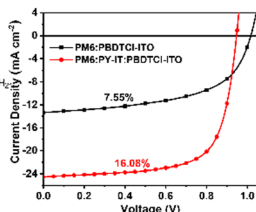


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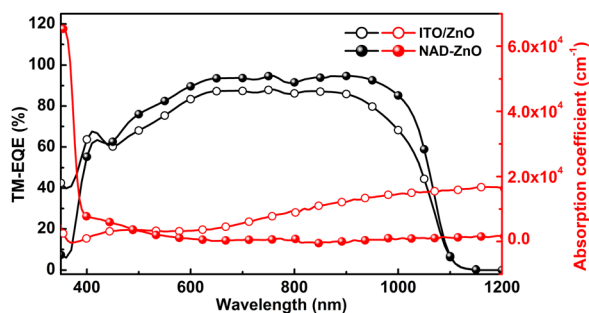


Novel indacene-1,3,5,7-tetraone-based polymerized small molecular acceptors for efficient all-polymer solar cells

Jianchao Jia, Yongdie Meng, Biao Xiao, Wei Zeng,*
Manjun Xiao* and Chuluo Yang*



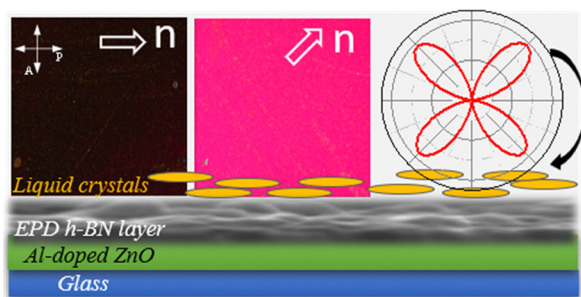
10697



Enhancing performance of organic photovoltaic and photodetector devices using non-atomically doped ZnO electrodes with superior optical properties

Ziqi Su, Hailin Pan, Yi Lin, Zheng Li, Ming Wang* and
Zaifei Ma*

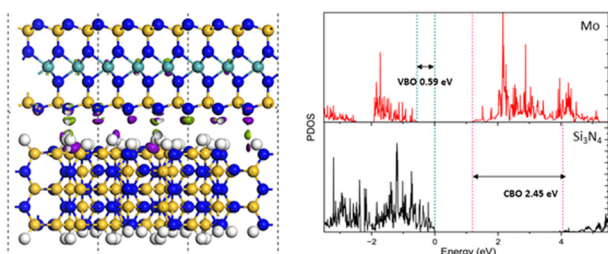
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A generic approach for aligning liquid crystals using solution-processed 2D materials on ITO-free surfaces

Gayathri R. Pisharody, Priyabrata Sahoo,
Abhishek Kumar Mishra, D. S. Shankar Rao,
H. S. S. Ramakrishna Matte* and S. Krishna Prasad*

10718



Modulating interface performance between 2D semiconductor MoSi₂N₄ and its native high-*k* dielectric Si₃N₄

Jiahao Chen, Yang Zuo, Chin Yuan Ong, Jingyu He,
Yulin Yang, Lai Mun Wong, Xiaoman Zhang* and
Ming Yang*

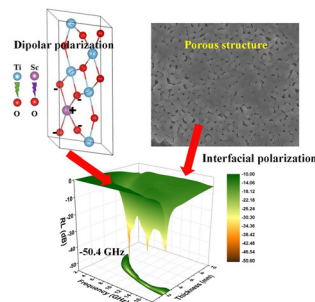


PAPERS

10726

High purity λ -Ti₃O₅ prepared by Sc doping for enhanced microwave absorption

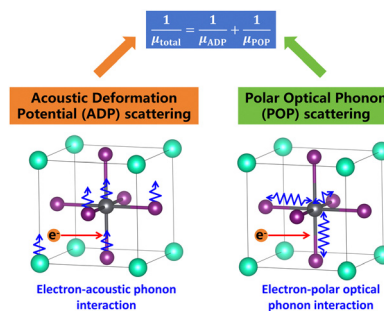
Xiankai Fu* and Huiyao Liu*



10733

Carrier mobilities and band alignments of inorganic perovskites of CsBX₃

Weitao Yan, Yao Sun, Xiaokun Zhao, Wen Yang, Boyan Li,* Dalong Zhong, Feng Lu and Wei-Hua Wang*



CORRECTION

10742

Correction: How to tune luminescent Cu(I) complexes with strong donor carbenes towards TADF?

Jasper Guhl, Dragana Sretenović, Philipp Schmeinck, Suren Felekyan, Ralf Kühnemuth, Christian Ganter,* Claus A. M. Seidel,* Christel M. Marian* and Markus Suta*

