

Journal of Materials Chemistry C

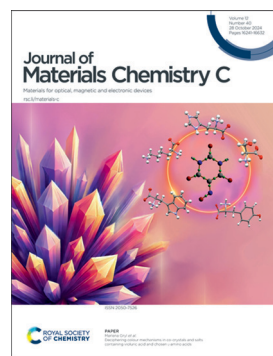
Materials for optical, magnetic and electronic devices

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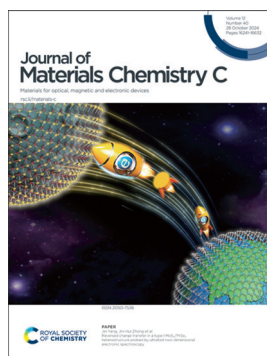
IN THIS ISSUE

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Cover

See Marlena Gryl *et al.*, pp. 16322–16331. Image reproduced by permission of Marlena Gryl from *J. Mater. Chem. C*, 2024, 12, 16322.



Inside cover

See Jin Yang, Jin-Hui Zhong *et al.*, pp. 16332–16342. Image reproduced by permission of Jin-Hui Zhong from *J. Mater. Chem. C*, 2024, 12, 16332.

EDITORIAL

16254

A special collection honoring Professor Thom Palstra, an exceptional scientist, leader and mentor

Yoshihiro Iwasa, Gabriela Maris, Beatriz Noheda, Harold J. W. Zandvliet and Oana D. Jurchescu*



PROFILE

16256

Contributors to the *Journal of Materials Chemistry C* Emerging Investigators 2024 collection



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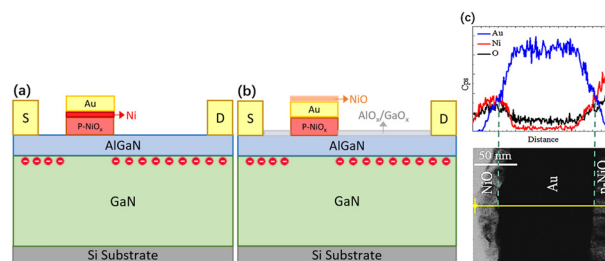
Fundamental questions
Elemental answers

REVIEW

16272

Challenges and advancements in p-GaN gate based high electron mobility transistors (HEMTs) on silicon substrates

Miaodong Zhu, Guoxin Li, Hangtian Li, Zhonghong Guo, Ying Yang, Jianbo Shang, Yikang Feng, Yunshu Lu, Zexi Li, Xiaohang Li, Fangliang Gao,* Wenqiu Wei* and Shutu Li*

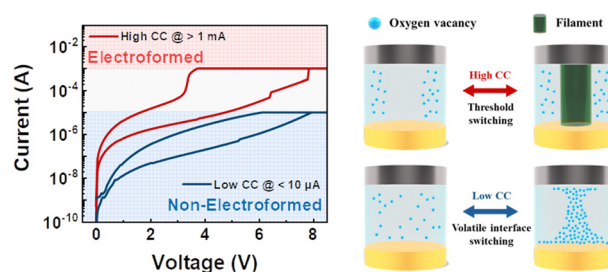


COMMUNICATIONS

16294

Dual functionality of NbO_x memristors for synaptic and neuronal emulations in advanced neuromorphic systems

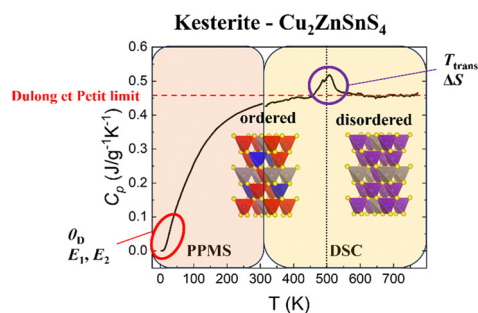
Seongmin Kim, Jungang Heo, Sungjun Kim* and Min-Hwi Kim*



16309

Heat capacity and structural transition effect in polycrystalline kesterite

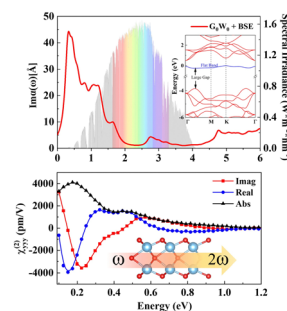
Cédric Bourgès,* Andrei Novitskii, Makoto Tachibana, Naoki Sato and Takao Mori



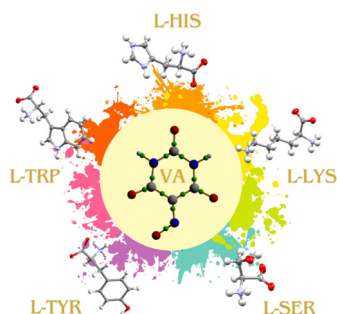
16314

Prediction of two-dimensional 2H-M₂O₃ (M = Ti and Zr) with strong linear and non-linear optical response in the infrared range

Anqi Huang, Linxuan Ji, Qiaoqiao Li, Yu Wu, Yi-min Ding* and Liujiang Zhou*



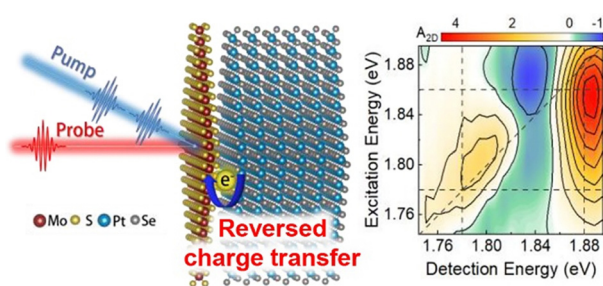
16322



Deciphering colour mechanisms in co-crystals and salts containing violuric acid and chosen L-amino acids

Agnieszka Rydz, Marlena Gryl,* Katarzyna Ostrowska and Katarzyna Marta Stadnicka

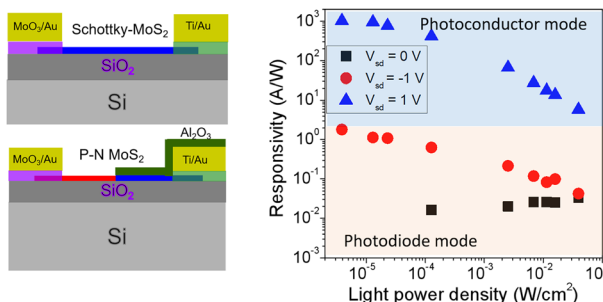
16332



Reversed charge transfer in a type I MoS₂/PtSe₂ heterostructure probed by ultrafast two-dimensional electronic spectroscopy

Niu Xu, Weiming Song, Kaizhen Liu, Jin Yang* and Jin-Hui Zhong*

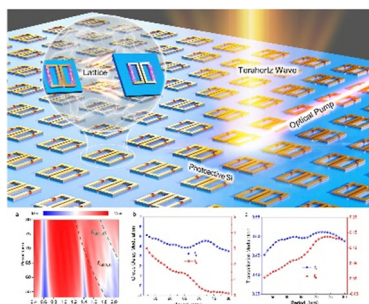
16343



2D MoS₂ photovoltaic detectors with a switchable mode

Yujue Yang, Ziyu Li, Huafeng Dong,* Xin Zhang,* Fugen Wu and Nengjie Huo*

16349



A lattice-enhanced light-driven terahertz meta-device with decoupled resonant modulation

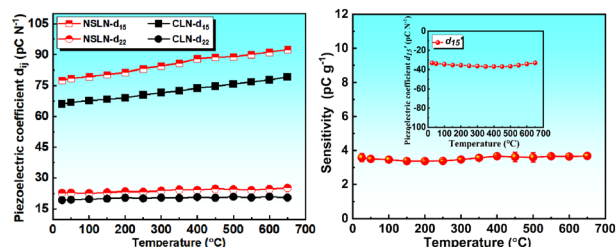
Jing Zhang, Xilai Zhao, Jiangang Liang,* Tong Cai, Chiben Zhang, Yifang Yuan, Hong Li, Xiao Yang, Xiaobao Zhang, Xi Wang, Tianwu Wang* and Jing Lou*



16357

Near stoichiometric lithium niobate crystal with dramatically enhanced piezoelectric performance for high-temperature acceleration sensing

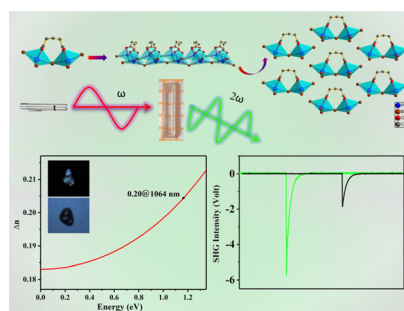
Guoliang Wang, Fulei Wang, Xi Gao, Dongzhou Wang,* Wei Song, Yanlu Li,* Xueliang Liu, Yuanhua Sang, Fapeng Yu* and Xian Zhao



16367

Design of alkali lead oxybromides with a strong second-harmonic generation response and large birefringence

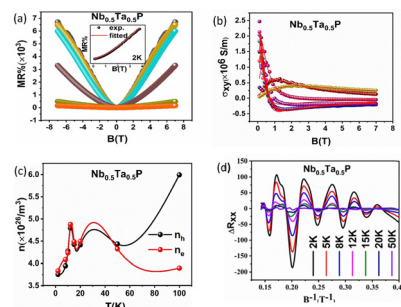
Jialin Zeng, Shuangcheng Li, Yahui Zhu, Zilong Geng, Yiting Luo, Ruibiao Fu* and Zuju Ma*



16375

Extremely large magnetoresistance with coexistence of a nontrivial Berry phase in Nb_{0.5}Ta_{0.5}P: an experimental and theoretical study

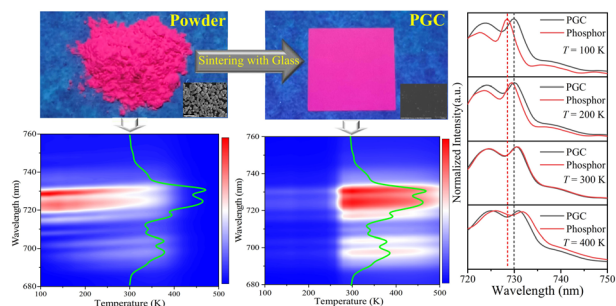
Vinod K. Gangwar, Saurabh Singh, Swayangsiddha Ghosh, Srishti Dixit, Shiv Kumar, Prashant Shahi, Yoshiya Uwatoko and Sandip Chatterjee*



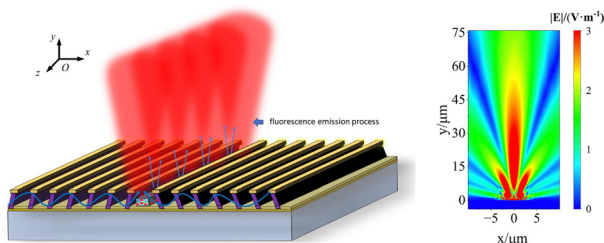
16389

Achieving high brightness and thermally stable far-red luminescence via ultrathin phosphor-glass composite engineering

Chenyang Li, Yimin Zhou, Fei Tang,* Yizhuo Chen, Kangzhen Tian, Bo Zhao and Shijie Xu*



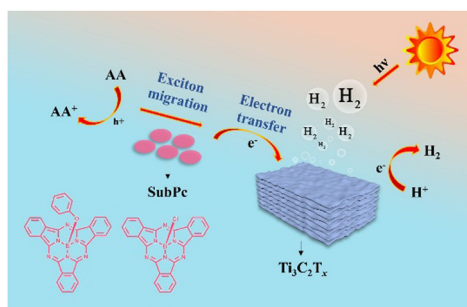
16398



Study on the fluorescence enhancement characteristics of double-layer dislocated metal gratings

Dongliang Tian, Zhiyuan Wang, Bin Han, Jie Song, Chunying Liu, Zhihui Chen* and Yang Wang*

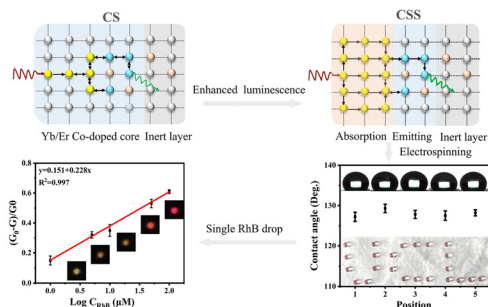
16405



Efficient organic-inorganic heterojunction structure for enhancing the photocatalytic activity of SubPc/Ti₃C₂T_x towards hydrogen production

Xiaoying Yu, Tianfang Zheng, Yuanlin Li, Yanxiang Liu, Ping Guo,* Hai-Hua Wang,* Shin-ichi Sasaki* and Xiao-Feng Wang*

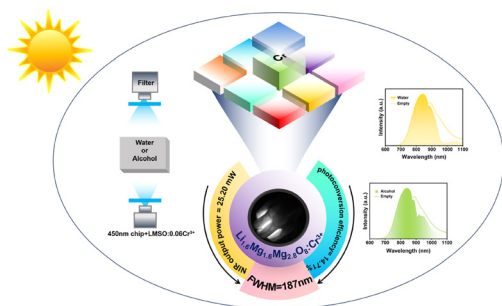
16415



Sensitizer-rich core-shell-shell upconversion nanoparticles for enhancing luminescence by spatial separation

Yujiao Zhang, Pengli Wang, Jiaxin Li, Jia Geng* and Cuisong Zhou*

16422



A novel near-infrared phosphor Li_{1.6}Mg_{1.6}Sn_{2.8}O₈:Cr³⁺ for near-infrared spectral analysis

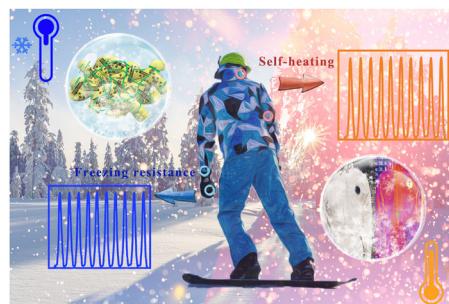
Xiaowei Zhang, Dashuai Sun, Pengcheng Luo, Luhui Zhou, Xinyu Ye* and Hongpeng You*



16431

Spider-web-structured CNTs/CuS coating-based flexible pressure sensor with extreme self-heating and anti-freezing ability as a safeguard for winter sports

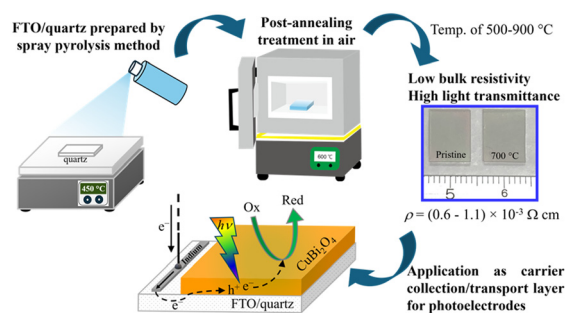
Sheng Zhang, Junyin Cheng, Bo Song, Shun Linghu, Yijun Tang, Qing Li* and Lei Chen*



16443

Development of thermally stable FTO thin films on quartz substrates for carrier collection in semiconductor photoelectrodes

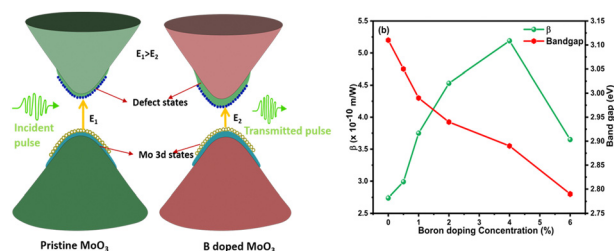
Tomohiro Higashi,* Shintaro Fukagawa, Kaisei Wakishima, Koichi Yoshiyama, Yuki Narita and Kenji Yoshino*



16459

Delving into the bandgap tuning and nonlinear optical properties of hydrothermally synthesized pristine and boron doped molybdenum trioxide nanorods

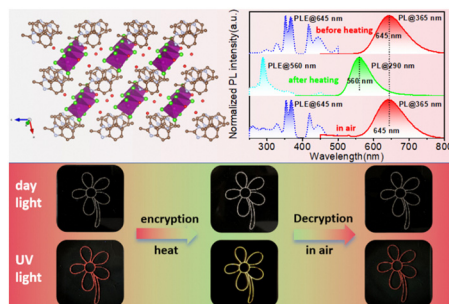
Anjali Gopalakrishna Pillai, Mallikarjun Anandalli, M. S. Kala* and Nandakumar Kalarikkal*



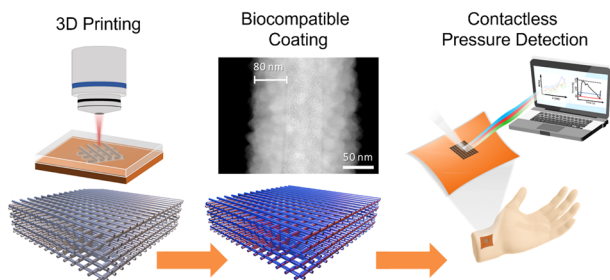
16471

Temperature/water triggered reversible emission transition in a one-dimensional Mn(II)-based metal halide

Yue Wu,* Xin Zhang, Bo Zhang, Liu-Di Xin, Xiao-Meng Zhen* and Liang-Jin Xu*



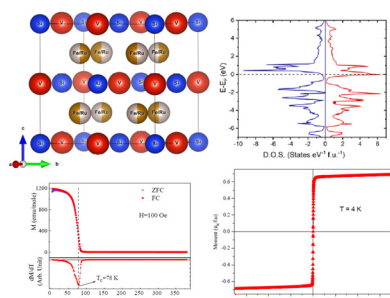
16478



Contactless pressure detection enabled by a hybrid 3D laser-printed nanophotonic sensor

Francesca Romana Calabrò, Krzysztof Mackosz, Anna Theodosi, Ioannis Katsantonis, Ivo Utker, Maria Kafesaki, Maria Gabriella Santonicola, Johann Michler, Angelos Xomalis* and Jakob Schwiedrzik*

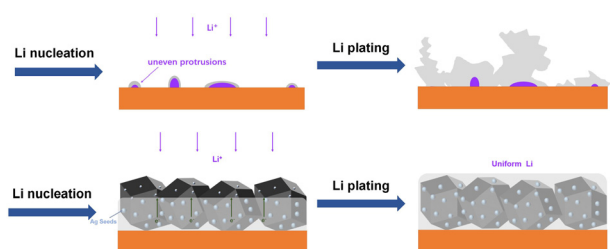
16487



Restructing disorder: transformation from the antiferromagnetic order in Fe_2VSi to the ferromagnetic state in FeRuVSi by substitution of a non-magnetic element

Shuvankar Gupta,* Sudip Chakraborty, Celine Barreateau, Jean-Claude Crivello, Jean-Marc Greneche, Eric Alleno and Chandan Mazumdar*

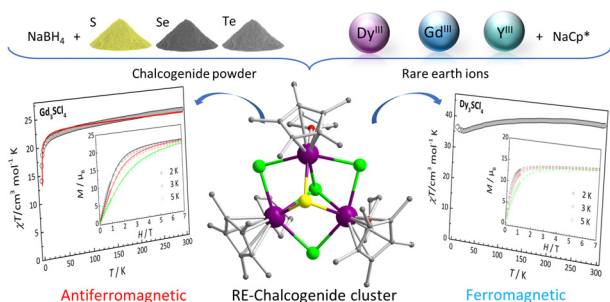
16495



In situ synthesis of lithiophilic Ag sites in 3D MOF-derived nitrogen-doped porous carbon composites towards dendrite-free lithium metal anodes

Xiaoxuan Li and Longwei Yin*

16506



Rare-earth chalcogenidotetrachloride clusters (RE_3ECl_4 , RE = Dy, Gd, Y; E = S, Se, Te): syntheses and materials properties

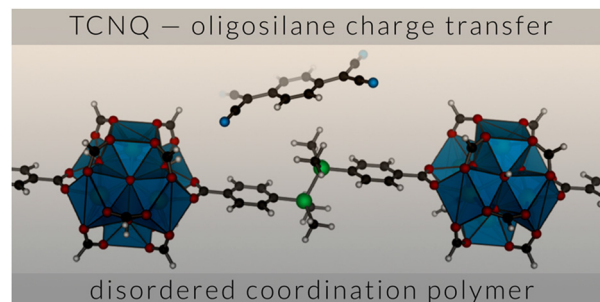
Lei Li, Tian-Jiao Xue, You-Song Ding* and Zhiping Zheng*



16515

Electrochemical host–guest interactions in a disordered oligosilyl coordination polymer

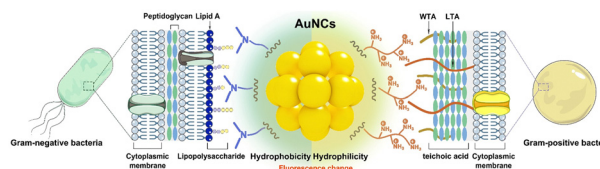
Rasha I. Anayah, Brian G. Diamond, Christopher H. Hendon* and V. Sara Thoi*



16523

Array-based specific classification of bacterial species *via* hydrophilic/hydrophobic biosensors

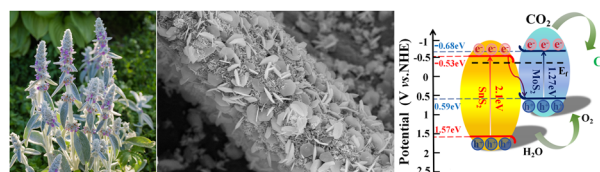
Xizhe Li, Pengxin Xue, Haoyu Wang, Haojie Li, Ruolan Du, Jie Gao,* Kwok-Yin Wong and Yong Qin



16533

Multiscale synergetic bandgap/structure engineering for the construction of full-spectrum-responsive heterostructured MoS₂/SnS₂ photocatalyst

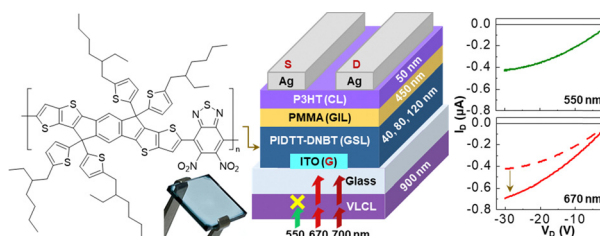
Wenjie Zhao, Jinyan Liu, Weiye Hou, Zhe Zhang, Xinrui Chen, Xianghua Zeng and Weiwei Xia*



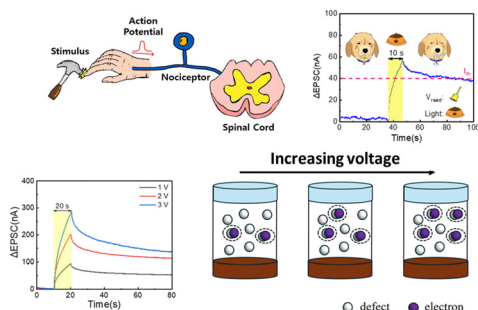
16543

Confined deep red light-detecting organic phototransistors with polymer gate-sensing layers consisting of indacenothiophene and dinitrobenzothiadiazole units

Chanbin Park, Taehoon Kim, Hwajeong Kim and Youngkyoo Kim*



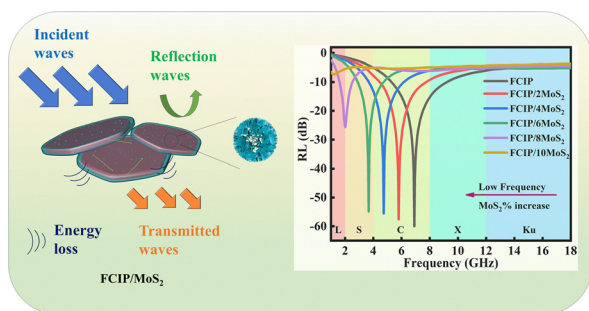
16551



SiN-based optoelectronic synaptic devices: enhancing future cognitive computing systems

Hyogeun Park and Sungjun Kim*

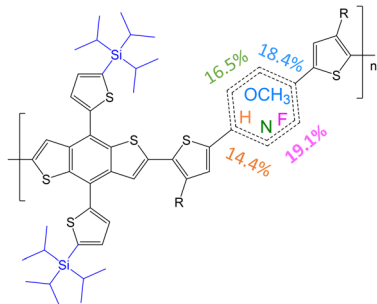
16560



Engineering flaky carbonyl iron/MoS₂ composites with tuned and broadband absorption towards low-frequency electromagnetic waves

Zhiqian Yao, Yuxin Liu, Yong Zhang,* Xueru Zhang, Yunfei Wu, Jiewu Cui, Jiaheng Wang, Yan Wang, Jiaqin Liu and Yucheng Wu*

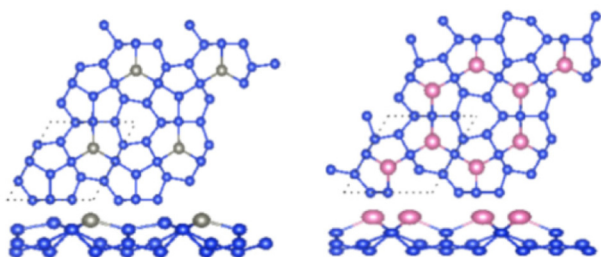
16574



Improving the photovoltaic performance of perovskite solar cells through the molecular design of donor–acceptor polymeric hole-transport materials

D. S. Zamoretskov, A. N. Zhivchikova, I. E. Kuznetsov, M. M. Tepliakova, N. G. Nikitenko, I. A. Konushkin, M. V. Gapanovich, D. A. Chernyayev, E. O. Perepelitsina, D. K. Sagdullina and A. V. Akkuratov*

16583



Exploring the electronic and superior piezoelectric properties of two-dimensional PH-SiX materials for high-performance silicon-based devices

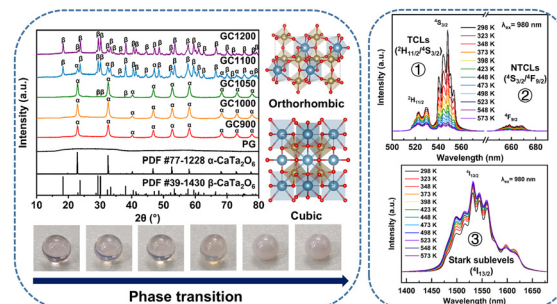
Lei Yang, Jin Gao, Rongrong Chen, Chenglong Jia, Desheng Xue* and Kun Tao*



16594

Structure, spectroscopic properties and optical temperature-sensing behavior of glass-ceramics containing polymorphic $\text{CaTa}_2\text{O}_6\text{:Er}^{3+}/\text{Yb}^{3+}$ nanocrystals

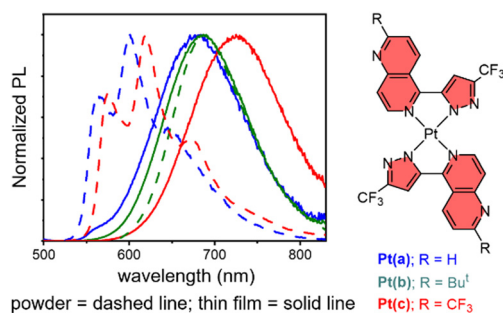
Chen Tian, Jian Ruan,* Xiujuan Zhao,* Jianjun Han and Chao Liu



16608

Pt(II) phosphors with dual 1,6-naphthyridin-5-yl pyrazolate chelates and non-doped organic light emitting diodes

Sheng-Fu Wang, Chi-Chi Wu, Pi-Tai Chou,* Yu-Cheng Kung, Wen-Yi Hung,* Cheng-Ju Yu, Chia-Hsiu Yeh, Fan Zhou, Jie Yan* and Yun Chi*



16617

A dilute ferromagnetic ZrO_2 /carbon nanocomposite derived from a zirconium-based metal-organic framework for high-performance electromagnetic wave absorption

Kun Zhang,* Xiaoyu Zhao, Fengyi Zhang, Yaxin Wang* and Yongjun Zhang

