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Journal of Materials Chemistry C

Materials for optical, magnetic and electronic devices

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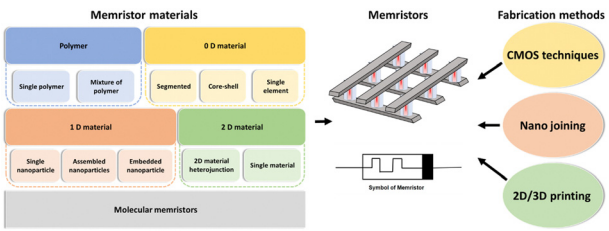
Cover
See Cigdem Yumusak *et al.*, pp. 3838–3853. Image reproduced by permission of Linz Institute of Organic Solar Cells (LIOS) from *J. Mater. Chem. C*, 2024, **12**, 3838.

REVIEWS

3770

Nanoscale memristor devices: materials, fabrication, and artificial intelligence

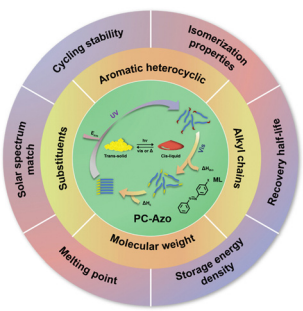
Yongchao Yu, Ming Xiao,* David Fieser, Wei Zhou and Anming Hu*



3811

Optimizing the performance of phase-change azobenzene: from trial and error to machine learning

Kai Wang, Huitao Yu, Jingli Gao, Yiyu Feng and Wei Feng*



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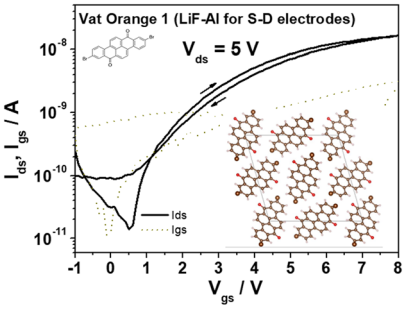
PAPERS

3838

Industrial vat orange dyes for organic field effect transistors

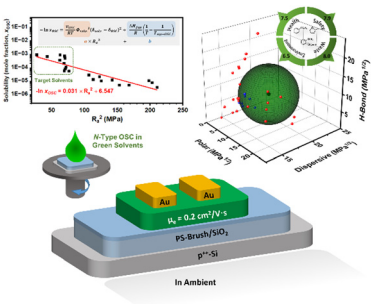
Bilge Kahraman, Cigdem Yumusak,* Felix Mayr, Dominik Wielend, Kamil Kotwica, Cristian Vlad Irimia, Elisabeth Leeb, Munise Cobet, Niyazi Serdar Sariciftci and Mihai Irimia-Vladu



3854

The Hansen solubility approach towards green solvent processing: n-channel organic field-effect transistors under ambient conditions

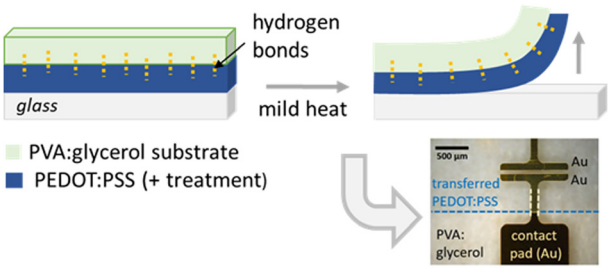
Ibrahim Deneme, Tevhide Ayça Yıldız, Nilgun Kayaci and Hakan Usta*



3865

Transfer-printing of patterned PEDOT:PSS structures for bendable, stretchable and biodegradable electronics

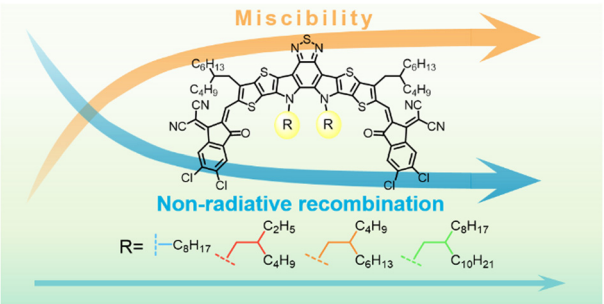
Carla Volkert,* Renan Colucci, Rüdiger Berger, Pol Besenius, Paul W. M. Blom and Ulrike Kraft*



3873

Regulating the miscibility of donors/acceptors to manipulate the morphology and reduce non-radiative recombination energy loss enables efficient organic solar cells

Ziqi Han, Ke Wang, Yongqiang Chai, Rui Zhang,* Jianqi Zhang, Dan He,* Chunru Wang and Fuwen Zhao*



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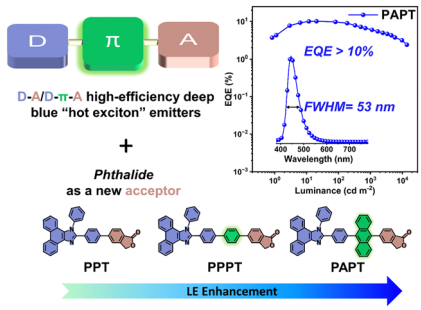
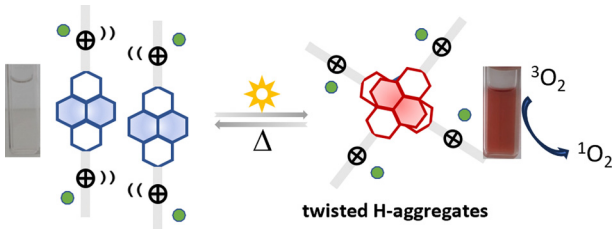


Achieving phthalide-based fluorescent materials with hybridized local and charge-transfer characteristics for efficient deep blue OLEDs

Zijun Feng, Futong Liu, Zhuang Cheng, Shuyuan Ge, Yaxue Wang, Zhenyu Yan, Xiaobo Ma, Yan Wang* and Ping Lu*

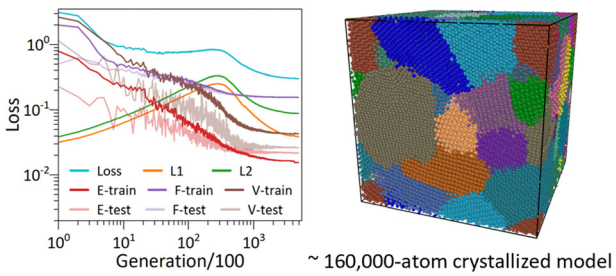
3888



Unprecedented light induced aggregation of cationic 1,4,5,8-naphthalenediimide amphiphiles

Rafael G. Antoneli, Thaisa B. F. Moraes, Helena C. Junqueira, Luca M. Sihn, Henrique E. Toma, Bruno Pedras, Luís F. V. Ferreira, Denis Frath, Christophe Bucher, Jonathan W. Steed, Gregóire J.-F. Demets and Eduardo R. Triboni*

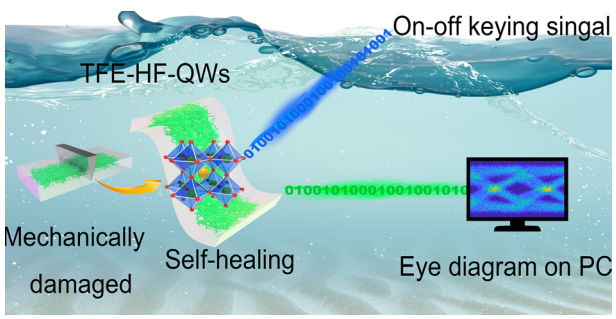
3897



Revealing the crystallization dynamics of Sb–Te phase change materials by large-scale simulations

Kaiqi Li, Bin Liu, Jian Zhou and Zhimei Sun*

3907



Stable and self-healing perovskite for high-speed underwater optical wireless communication

Xiangyu Xu, Yuxuan Fu, Zhongren Shi, Chao Li, Yan Kuai, Zhijia Hu, Zhigang Cao* and Siqi Li*

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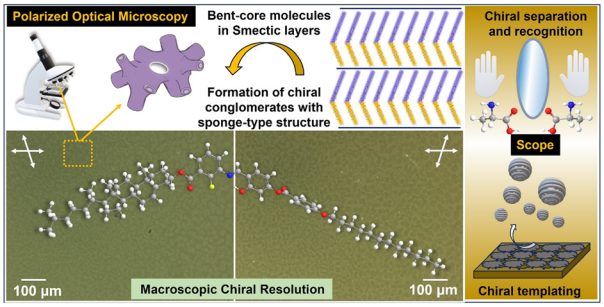
PAPERS

3915

Mesomorphic and dielectric properties of strategically designed chiral bent-core liquid crystals displaying wide temperature range dark conglomerate phase

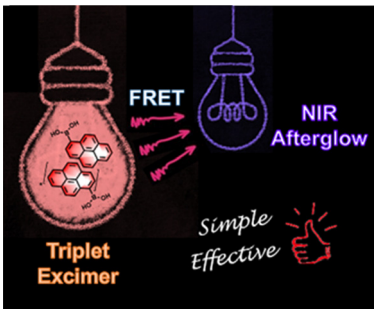
Anshika Baghla, Vidhika Punjani, D.S. Shankar Rao,* S. Krishna Prasad* and Santanu Kumar Pal*



3924

Purely organic near-infrared afterglow systems based on a triplet excimer donor

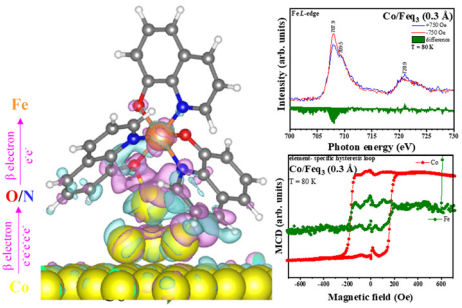
Faxu Lin, Jinzheng Chen, Yiling Miao, Xiang Long, Wen Wang, Wei Hu, Haiyang Wang, Huahua Huang,* Guodong Liang* and Zhenguo Chi



3931

Unravelling the strong interplay for interfacial magnetic switching in metal–organic-based spintronics

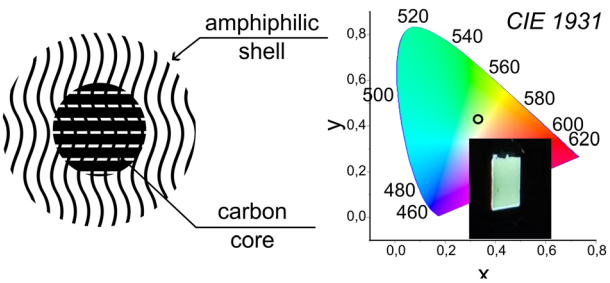
Wan-Ting Chen, Li-Chung Yu, Jiu-Hua Lin, Su Ling Cheng, Hung Wei Shiu, Yu-Ling Lai, Ying-Hao Chu, Yi-Ying Chin, Jeng-Han Wang* and Yao-Jane Hsu*



3943

Amphiphilic acetylacetone-based carbon dots

Sergei A. Cherevkov, Evgeniia A. Stepanidenko, Mikhail D. Miruschenko, Andrei M. Zverkov, Alexander M. Mitroshin, Igor V. Margaryan, Igor G. Spiridonov, Denis V. Danilov, Aleksandra V. Koroleva, Evgeniy V. Zhizhin, Marina V. Baidakova, Roman V. Sokolov, Maria A. Sandzhieva, Elena V. Ushakova* and Andrey L. Rogach



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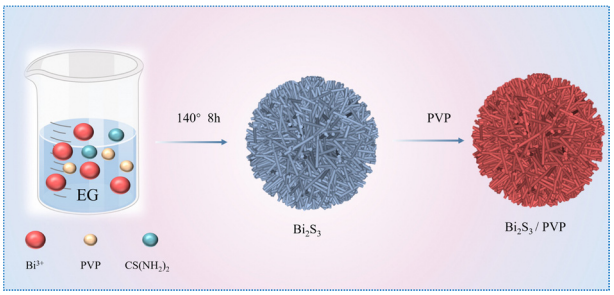
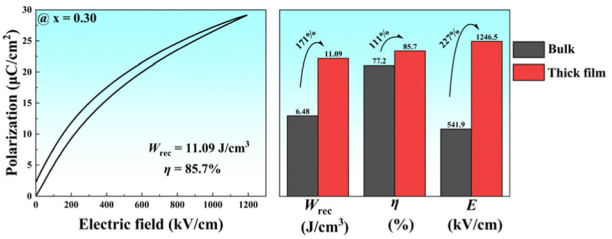


A Li–O_2/CO_2 battery based on bio-inspired engineering of the Bi_2S_3/PVP cathode

Song Gao, Siqi Li, Miao Han, Yuanlong E., Wanqiang Liu, Hongsheng Jia* and Fang Wang*

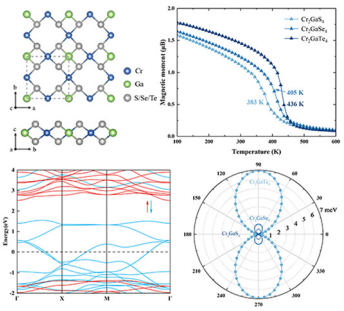
3962



Superior energy storage properties in lead-free $NaNbO_3$-based relaxor antiferroelectric ceramics *via* a combined optimization strategy

Huanwei Liu, Xiang Niu, Ting Wang, Yi Tang, Zihao Xu, Xubing Lu, Xiangbin Zhang, Wenhan Zeng, Mingtao Xu, Houzhu He, Yuleng Jiang, Weiping Gong, Xiaobo Zhao, Yingbang Yao, Tao Tao, Bo Liang and Sheng-Guo Lu*

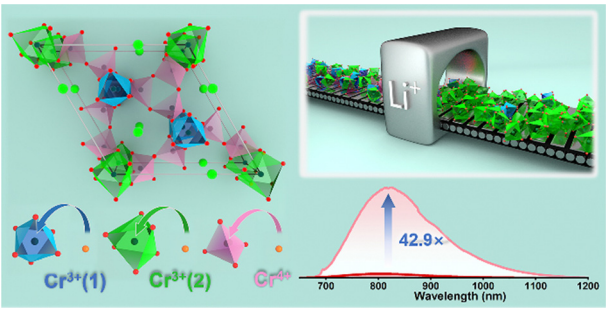
3972



Two-dimensional Cr_2GaX_4 (X = S, Se, Te) monolayers: half-metallic intrinsic room temperature ferromagnets with large magnetic anisotropy

Sai Ma, Xiangyan Bo, Xiaoyu Liu, Suen Wang, Mengxian Lan, Shasha Li,* Feng Li* and Yong Pu*

3980



Remarkable near-infrared emission enhancement of Cr^{3+}-activated $BaGe_4O_9$: the role of lithium ions

Yuechao Tang, Jin Yang, Qinan Mao,* Yang Ding, Guojun Zheng, Lang Pei and Jiasong Zhong*

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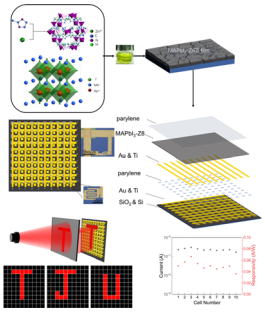
Doping a metal–organic framework material (ZIF-8) on a perovskite photoconductive detector for improving stability and photoresponsivity

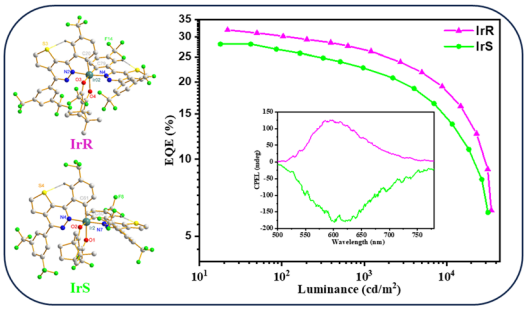
Shuo Guan, YunHao Ning, Hongda Chen, Beiju Huang, Bao Zhang* and Chuantong Cheng*



3997

Highly efficient circularly polarized phosphorescent electroluminescence from iridium(III) complexes with chiral ligands

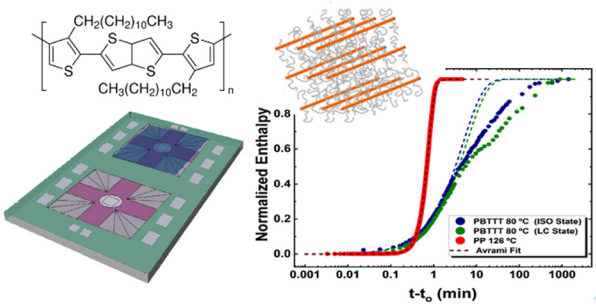
Xiao-Yu Zhang, Zi-Qi Chen, Dong Li, Bi-Hai Tong,* Man-Keung Fung,* Yi-Xiang Cheng* and Hui Kong*



4005

Crystallization kinetics of semiconducting poly(2,5-bis(3-alkylthiophen-2-yl)-thieno-[3,2-*b*]thiophene) (PBTTT) from its different liquid phases

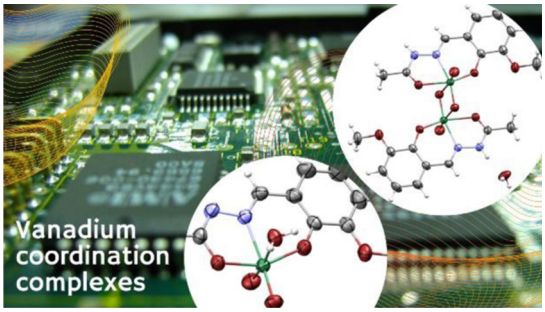
Valentina Pirela, Alejandro J. Müller* and Jaime Martín*



4013

Evaluation of vanadium coordination compounds derived from simple acetic acid hydrazide as non-conventional semiconductors

Josipa Sarjanović, Edi Topić, Mirta Rubčić, Lidija Androš Dubraja, Luka Pavić* and Jana Pisk*



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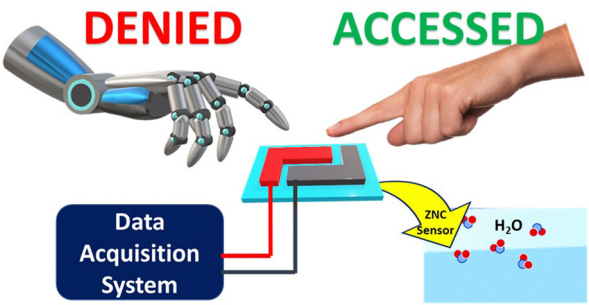
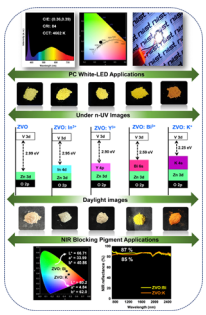


Stimuli-free Zn/soda-lime glass/CuO-based MIS device for sensing human skin moisture

Kanhai Kumar, Hemam Rachna Devi, Gokul Raj and Karuna Kar Nanda*

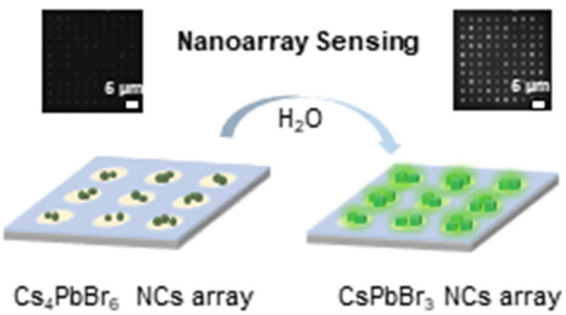
4037



Multifaceted insight into the cation-disordered self-activated luminescence of $Zn_3V_2O_8$ compositions for lighting and pigment applications

S. Shisina, P. K. Thejus, K. G. Nishanth* and Subrata Das*

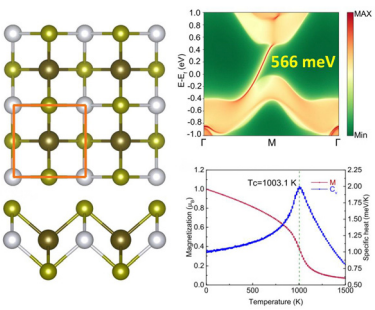
4054



Turn-on fluorescence humidity sensing based on Cs_4PbBr_6 nanocrystal array

Yelu Wei, Yang Liu, Yuchen Zhang, Jiahao Pan, Shuhan Pan, Ying Wei, Bingcai Pan, Zhenda Lu* and Xing Xing*

4062



Excellent intrinsic Chern insulators: monolayer $PdTaX_2$ (X = Se, Te)

Shenda He, Ruirong Kang, Pan Zhou,* Pengbo Lyu and Lizhong Sun*

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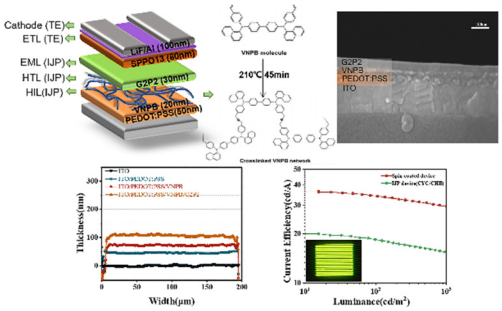
4070

Improving film uniformity and interface solvent resistance to realize multilayer printing of OLED devices

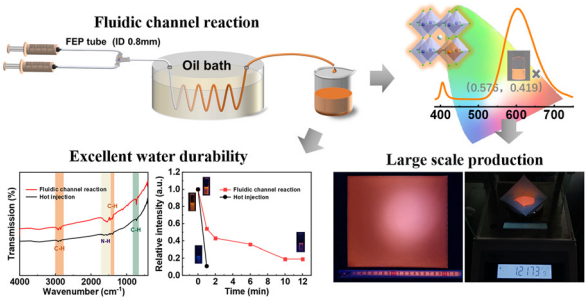
Xuelei Liu, Dong Lv, Shumeng Wang, Xinhong Yu* and Yanchun Han*



4085

High-throughput preparation of Mn^{2+}-doped $CsPbCl_3$ nanocrystals *via* a fluidic channel reaction

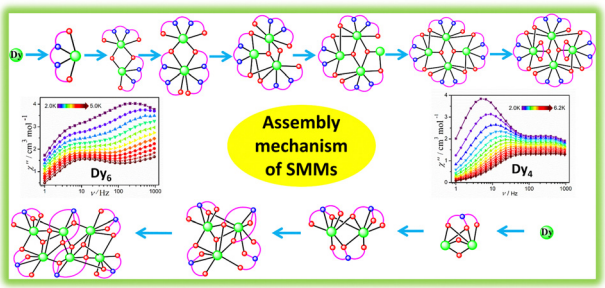
Jingshan Hou, Qing Zhang, Runze Guo, Jianghua Wu, Langping Dong, Guoying Zhao, Ganghua Zhang, Wei Gao,* Yufeng Liu* and Yongzheng Fang*



4093

Structure and assembly studies of two planar Dy(III) single molecule magnets with double relaxations

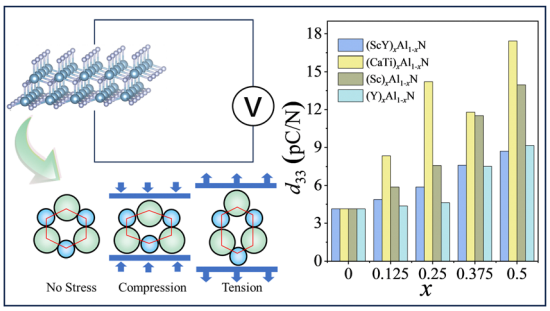
Shui Yu, Lan Liu, Limin Zhou, Dongcheng Liu,* Chuying Chen, Hua-Hong Zou, Huancheng Hu,* Yuning Liang, Fupei Liang and Zilu Chen*



4103

Theoretical evidence of the piezoelectric property enhancement for ScY- or CaTi-codoped wurtzite AlN

Youyou Guo, Xinguo Ma,* Tian Xie, Shida Yao, Jiajun Liao, Yijing Ren and Nan Ma



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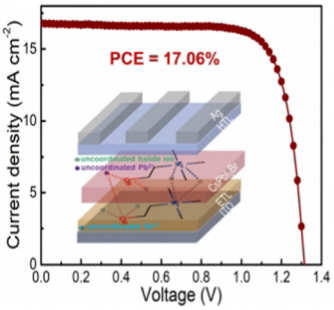
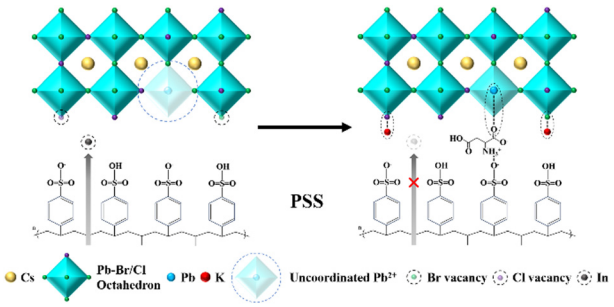


A multiple-coordination framework for $CsPbI_2Br$ perovskite solar cells

Jincheng Huang, Dingjian Zhou, Huibo Yan, Chunfeng Meng, Yuzhao Yang, Jun Liu, Ming Wang, Ping Xu, Zhuoyin Peng,* Jianlin Chen and Guijun Li*

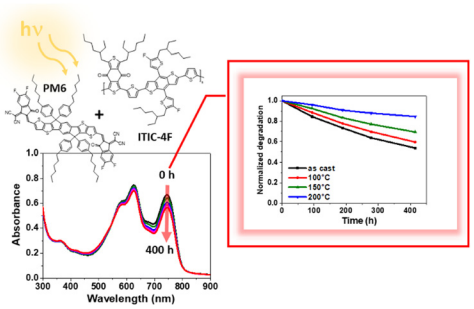
4123



Synergistic interaction of multi-functional additives at the buried interface for efficient blue perovskite light-emitting diodes

Kaiyu Yang, Qiuxiang Lin, Baolin Xu, Yongshen Yu, Hailong Hu and Fushan Li*

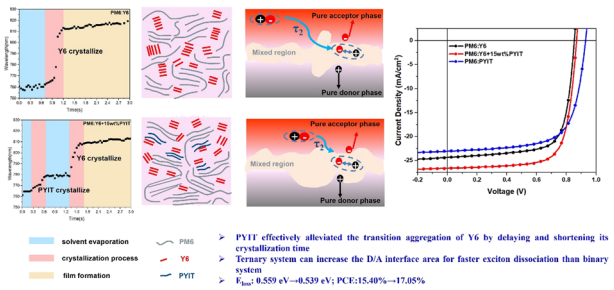
4130



Insights into the relationship between molecular and order-dependent photostability of ITIC derivatives for the production of photochemically stable blends

Y. A. Quiroz Avalos, Q. Eynaud, P. Perkhun, A. Rivaton, W. Köntges, R. R. Schröder, T. Koganezawa, N. Yoshimoto, A. Kumar Bharwal, D. Duché, C. M. Ruiz, O. Margeat, C. Aumaître, R. Demadrille,* C. Videlot-Ackermann* and J. Ackermann*

4142



Alleviating excessive aggregation of a non-fullerene acceptor by delaying and shortening the crystallization time to reduce the energy loss of ternary organic solar cells

Jiaqi Pan, Jian Guan, Zehao Wang, Rui Zhang,* Yingying Fu, Xinhong Yu, Qiang Zhang and Yanchun Han*

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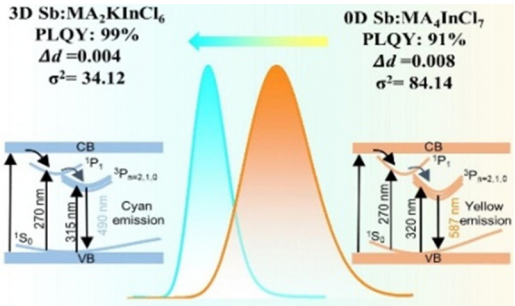
PAPERS

4157

Alkali metal salt-assisted crystal structure switch of hybrid indium halides with near-unity photoluminescence quantum yield

Shuai Zhang, Canxu Chen, Yuanjie Chen, Bingsuo Zou* and Ruosheng Zeng*



CORRECTION

4168

Correction: Effect of the cyano group on colour-tunability of aryl-substituted buta-1,3-diene based solid-state emissive copolymers

Prasanta Pal, Ayan Datta, Susmita Mukherjee, Ajay Perumal* and Sudip Malik*