

Journal of Materials Chemistry C

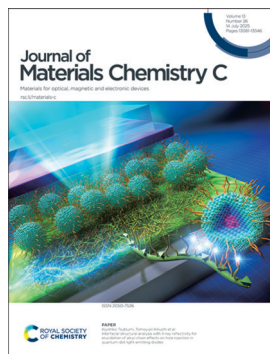
Materials for optical, magnetic and electronic devices

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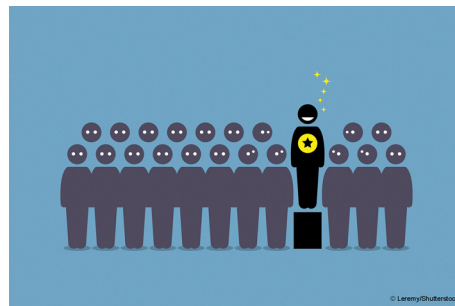
Cover

See Kiyohiko Tsutsumi, Tomoyuki Kikuchi *et al.*, pp. 13121–13130. Image reproduced by permission of Kiyohiko Tsutsumi from *J. Mater. Chem. C*, 2025, 13, 13121.

EDITORIAL

13096

Outstanding Reviewers for *Journal of Materials Chemistry C* in 2024

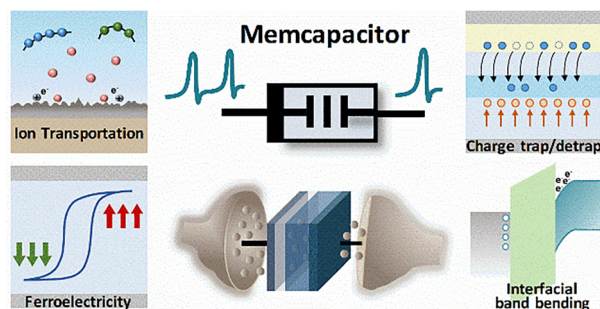


HIGHLIGHT

13098

Memcapacitors in neuromorphic architectures: the mechanisms, challenges, and applications

Kuan-Ting Chen, Li-Chung Shih, Yu-Chieh Chen, Kuan-Han Lin and Jen-Sue Chen*



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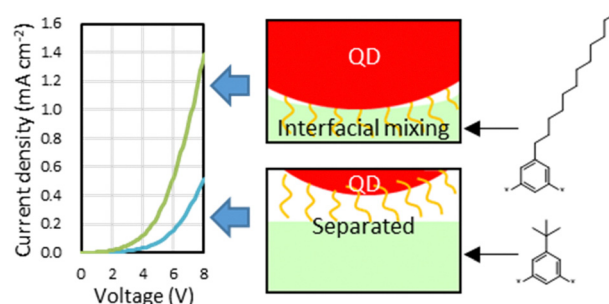
Fundamental questions
Elemental answers

PAPERS

13121

Interfacial structural analysis with X-ray reflectivity for elucidation of alkyl-chain effects on hole injection in quantum-dot light-emitting diodes

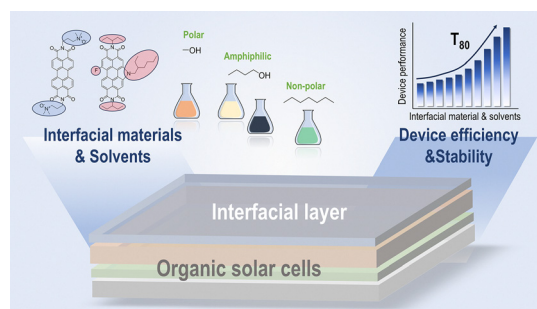
Kiyohiko Tsutsumi,* Yusaku Konishi, Takao Motoyama, Fumiaki Kato, Wataru Sotoyama, Naotoshi Suganuma, Masashi Tsuji, Takahiro Fujiyama, Keigo Furuta, Norihito Ishii, Tomoyuki Kikuchi,* Dae-Young Chung, Hail Kwon, Yu-Ho Won and Tadao Yagi



13131

Chemical structure and processing solvent of cathode interlayer materials affect organic solar cells performance

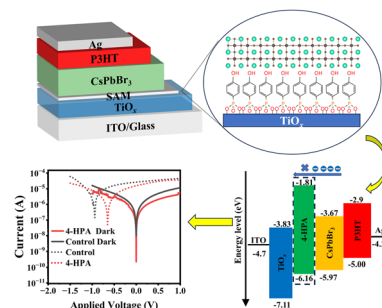
Souk Y. Kim, Pimmada Sawangwong, Colton Atkinson, Gregory C. Welch and Nutifafa Y. Doumon*



13144

A high-performance self-powered CsPbBr₃ perovskite photodetector enabled by self-assembled monolayer interface engineering

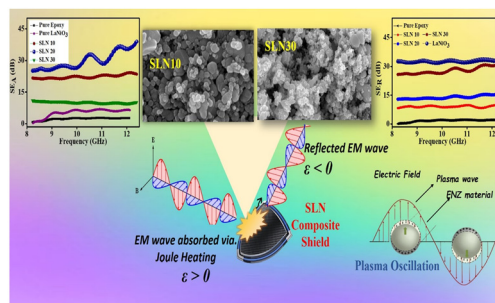
Yu Liu, Li Chen,* Shaohong Li, Zejiang Gao, Yuping Pang and Bingsuo Zou*



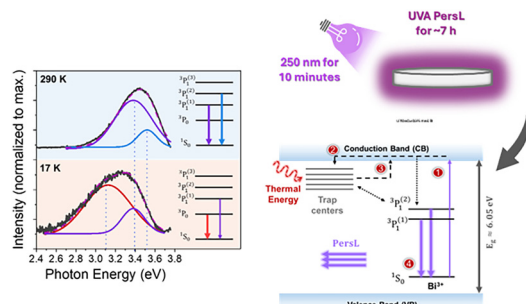
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New frontiers in ceramic composites: tunable electromagnetic interference shielding by realizing negative permittivity in SnO₂/LaNiO₃ nanocomposites

Tarun Katheriya, Sukhdev Pandey and Shail Upadhyay*



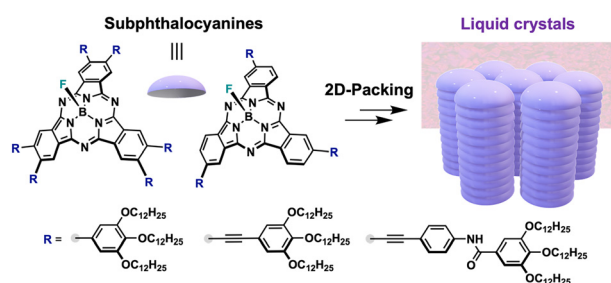
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Unravelling the UV luminescence of Bi-doped LiYGeO_4 : a journey from first principles to temperature-dependent photoluminescence

Inês Proença,* José D. Gouveia, Ana V. Girão, Marco Peres, Rodrigo Mateus, Luís C. Alves, Duarte M. Esteves, Ana L. Rodrigues, Maria I. Dias, Katharina Lorenz, Luís Rino, Florinda M. Costa, Teresa Monteiro and Joana Rodrigues*

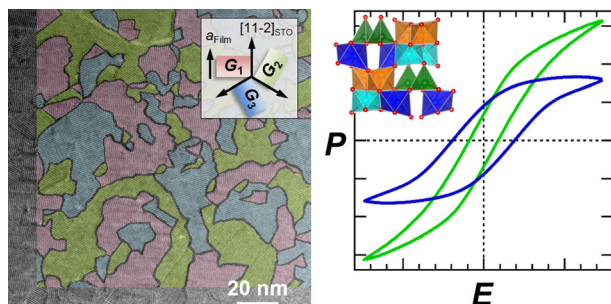
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Tuning the liquid crystal behavior of subphthalocyanines: effects of substitution, chirality, and hydrogen bonding

Jorge Labella,* Elisa López-Serrano, Jorge Labrador-Santiago, Joaquín Barberà, César L. Folcia, Teresa Sierra* and Tomás Torres*

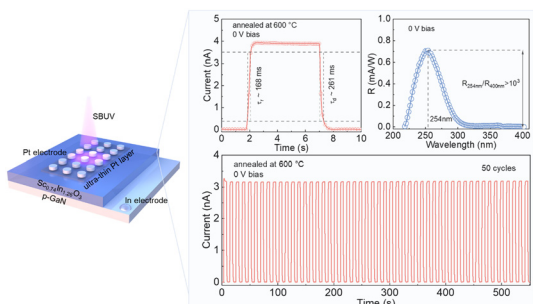
13190



Achieving clear ferroelectric polarization reversal in room-temperature multiferroic $\epsilon\text{-Fe}_2\text{O}_3$ systems through grain boundary engineering

Tsukasa Katayama,* Shintaro Yasui,* Takahisa Shiraishi, Takanori Kiguchi, Badari Narayana Rao, Yosuke Hamasaki and Mitsuru Itoh*

13197



A high-performance self-powered solar-blind UV photodetector based on an annealed $\text{Sc}_{0.74}\text{In}_{1.26}\text{O}_3$ ternary alloy film

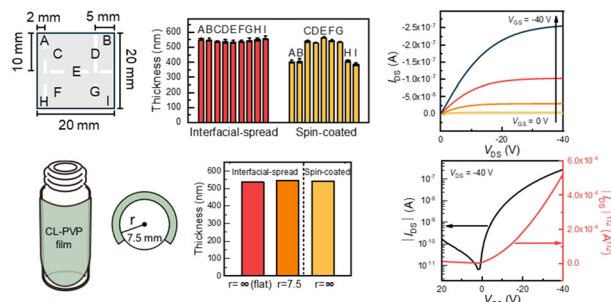
Zhengdong Jiang, Peicheng Jiao, Yutao Xiong, Zhiyuan Luo, Dan Zhang, Yanghui Liu* and Wei Zheng



13206

Interfacial spreading for rapid formation of uniform gate dielectric layers on flat and curved substrates for organic devices

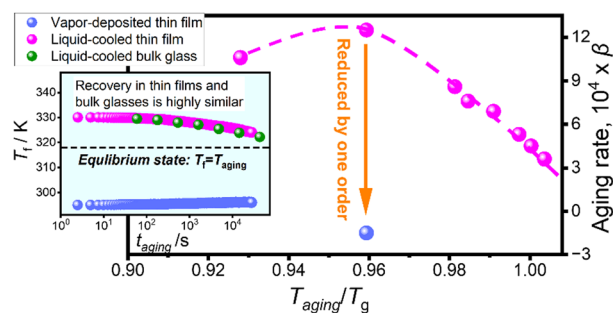
Minji Kim, Gergely Tarsoly, Dongyub Kwon and Seungmoon Pyo*



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Physical aging of glasses of an organic semiconductor

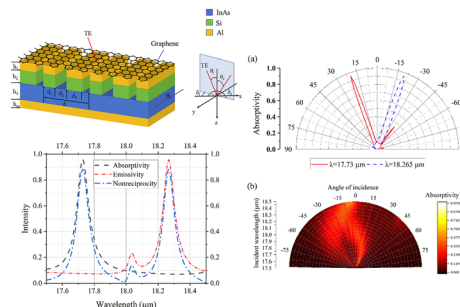
Shinian Cheng,* Kritika Jha, Zijian Wang, Juliana I. Bonilla-Lugo, Hayley Kositzke, John H. Perepezko, Zahra Fakhraai and Mark D. Ediger



13224

A graphene-sandwiched Al/Si/InAs nonreciprocal emitter under transverse electric polarization adjusted by azimuth angle

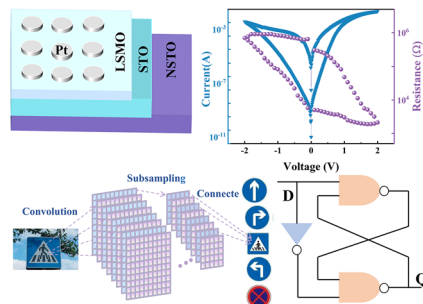
Xiaofeng Wang and Bo Wang*



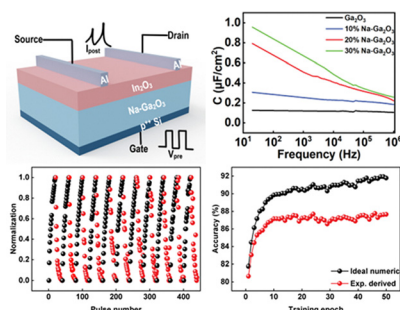
13235

SrTiO₃-based memristor with a metal/oxide bilayer electrode for high recognition accuracy neuromorphic computing

Yan Wang, Hao Liu, Wenshuo Wu, Guorui Yin,* Minghao Zhang and Jie Su*



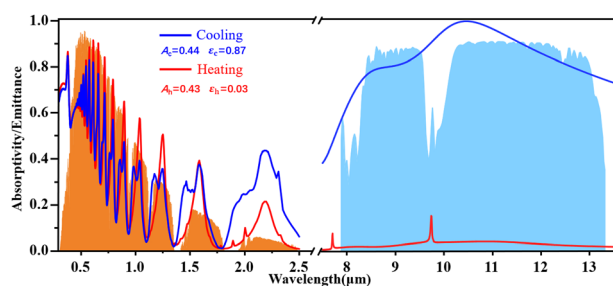
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Na-doped Ga₂O₃ electrolyte-gated synaptic transistors for neuromorphic computing

Jierui Lin, Shuqiong Lan,* Lan Yang, Qiubao Lin, Yayong Chen and Wangying Xu*

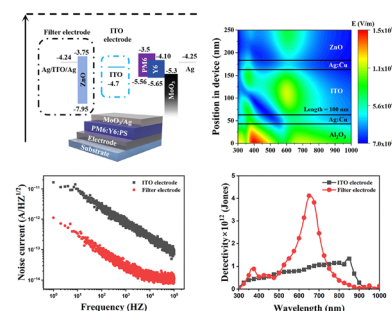
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A thermochromic material VO₂-based metamaterial device for efficient temperature-adaptive radiative cooling

Zichen Lin and Bin Tang*

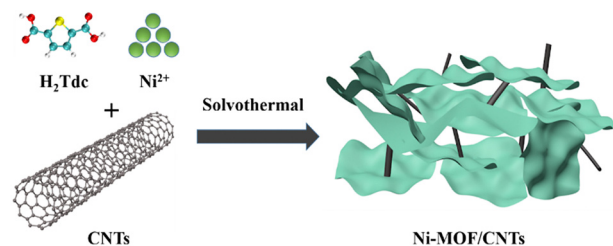
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Organic narrowband photodetectors with a filter electrode using Fabry–Pérot cavities for enhanced performance

Guozhen Bai, Jingzan Jiang, Tingting Dai, Min Guo, Pengtian Liu, Jia Li, Zhidong Lou, Yanbing Hou, Feng Teng* and Yufeng Hu*

13272



Carbon nanotube-regulated growth of metal–organic framework nanosheets for enhanced electrochemical energy storage

Weibiao Guo, Zhikuan Wang, Yu Liang, Shujun Liu, Xuejun Xu, Huixia Chao, Chongxiong Duan* and Hongxia Xi*

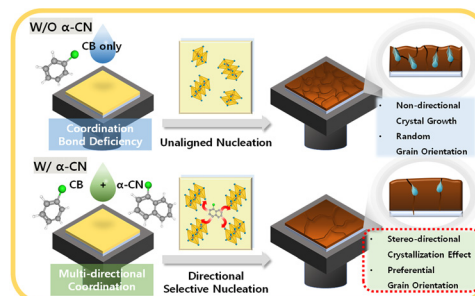


PAPERS

13283

Preferential crystallographic orientation *via* α -CN stereo-directional effect for superior perovskite indoor photodetectors

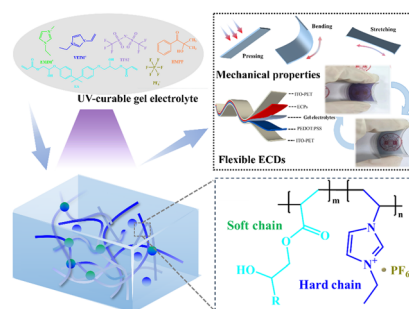
Byung Gi Kim, Emad S. Goda, Jin Young Kim, Du Heon Ha, Ga Yoon Chae and Dong Hwan Wang*



13297

A robust UV-curable ion-liquid gel electrolyte for high-performance polymer-based electrochromic devices

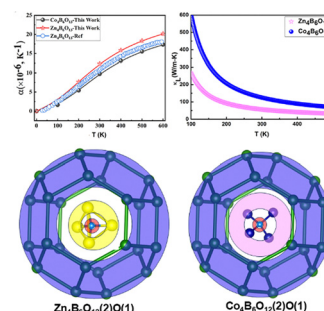
Guoqiang Kuang, Yuanzheng Mu, Hongbin Yin, Yijie Tao,* Yafei Guo* and Shiguo Zhang*



13307

Low thermal expansion and high lattice thermal conductivity in β -sodalite $\text{Co}_4\text{B}_6\text{O}_{13}$: enhancing the local rigidity of the cationic tetrahedral cluster

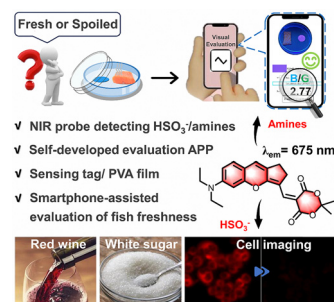
Yuanyuan Li,* Dingfeng Yang,* Wen Jiang, Xiangnan Gong,* Wenjing Huang and Jie Gao



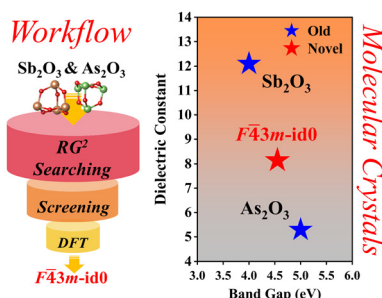
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A near-infrared fluorescent probe for $\text{SO}_3^{2-}/\text{HSO}_3^-$ and amine detection: an integrated sensing tag/film with a self-developed mobile app for visual fish freshness assessment

Keli Zhong, Lina Hu, Li Tian, Lijun Tang,* Xiaofei Sun, Tianyu Liang,* Jianrong Li and Xuepeng Li*



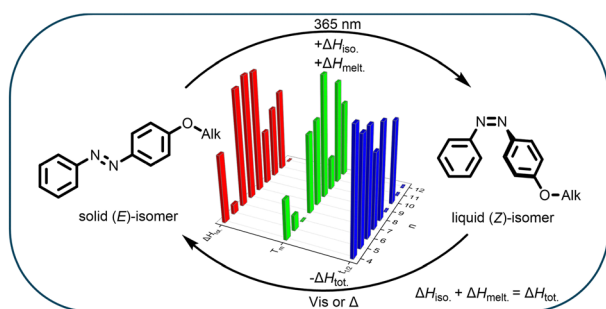
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Acquiring hybrid molecular crystal materials through high-throughput screening

Yu-Han Yang, Yao-Long Kang, Zi-Ye Li, Jia-Bin Liu, Fu-Sheng Zhang, Chen-Dong Jin, Rui-Ning Wang, Xing-Qiang Shi, Jiang-Long Wang and Peng-Lai Gong*

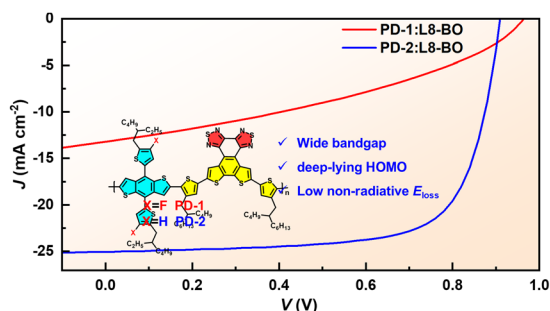
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Structure–property relationship of *p*-alkoxyazobenzenes as molecular solar thermal phase change material energy storage systems (MOST-PCM)

Conrad Averdunk, Monika Shamsabadi, Kasper Moth-Poulsen and Hermann A. Wegner*

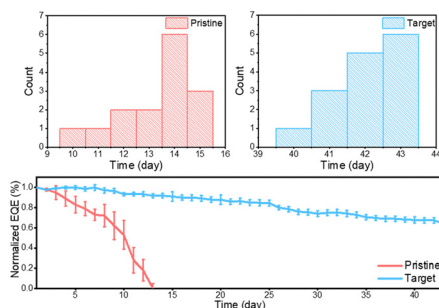
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Polymer donors with a new electron-deficient unit for efficient organic solar cells

Zhe Zhang, Tianqi Chen, Xuehang Dong, Haoyu Li, Tainan Duan, Ekaterina A. Knyazeva, Alexandra S. Chechulina, Oleg A. Rakitin, Bin Kan, Xiangjian Wan and Yongsheng Chen*

13355



Prolonging the lifetime of quasi-2D perovskite blue LEDs via DMAcPA doping for defect passivation

Yu-Chuan Huang, Chien-Cheng Li, Tzu-Yu Huang, Yu-Hsuan Lai, Xin-Kai Gao, Jia-Xin Li, Chang-Hua Liu, Hao-Chung Kuo, Ray-Hua Horng and Chih-Shan Tan*

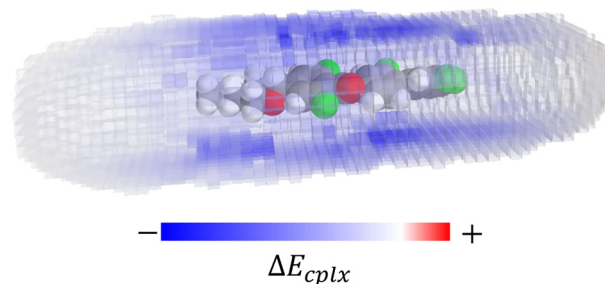


PAPERS

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Polarity from the bottom up: a computational framework for predicting spontaneous polar order

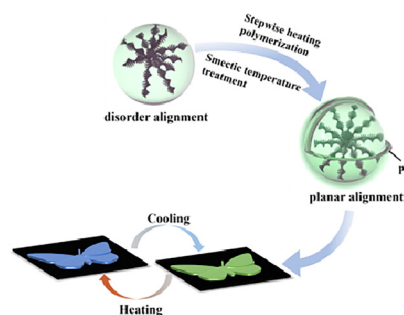
Jordan Hobbs, Calum J. Gibb and Richard J. Mandle*



13376

Preparation of thermochromic cholesteric liquid crystal microcapsules with a planar alignment via stepwise interfacial polymerization

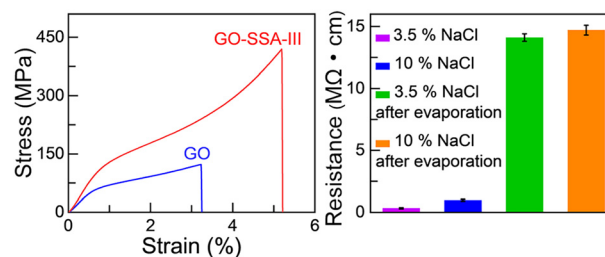
Hongbo Lu,* Xiaoyu Chang, Beibei He, Shunpin Mo, Longzhen Qiu, Jun Zhu and Miao Xu



13385

Robust graphene oxide composite films applicable to solar water evaporators prepared via covalent cross-linking

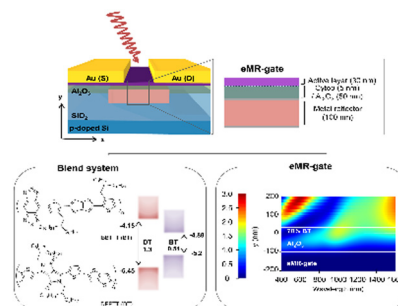
Hong Ni,* Yun Bai, Xia Guo, Qiang Dai and Mei Zhang



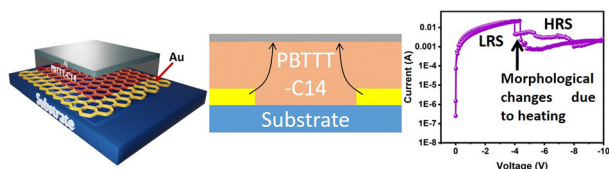
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Shortwave infrared organic phototransistors with improved performance via conjugated polymer blends and a metal reflector gate architecture

Danbi Kim, Hyemi Han, Changsoo Choi, Jeong Ho Cho, Jae-Hoon Han* and Jung Ah Lim*



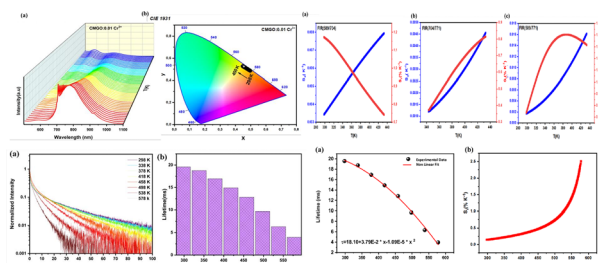
13404



Inverted resistive switching mechanism in polycrystalline PBTTT-C14 polymer devices based on contact geometry and molecular packing for neuromorphic memory

Ramesh Singh Bisht and Pramod Kumar*

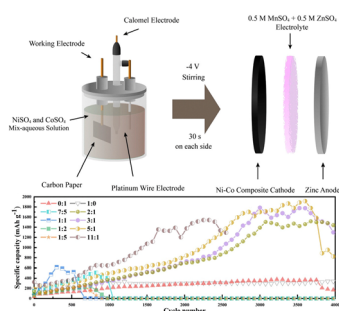
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Cr³⁺-doped CaMgGe₂O₆ phosphors: crystal field effects and the synergistic role of FIR and fluorescence lifetime in multi-mode optical thermometry

Yosra Bahrouni, Ikhlas Kachou, Kamel Saidi, Christian Hernández-Álvarez, Mohamed Dammak* and Inocencio R Martín

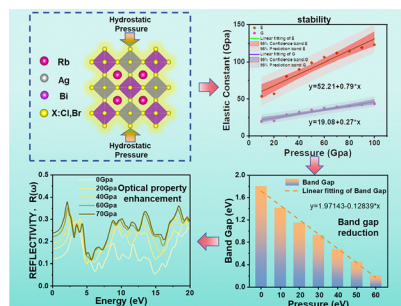
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Nickel-cobalt-manganese ternary electrodes with CEI film evolution via ORR-regulated pH modulation in zinc-ion batteries

Lin Chen and Longyan Li*

13438



Halide double perovskite Rb₂AgBiX₆ (X = Br, Cl) exhibits excellent stability and optical properties under high pressure

Qingfeng Wei, Shuyue Wang, Binbin Fan and Zhe Tang*



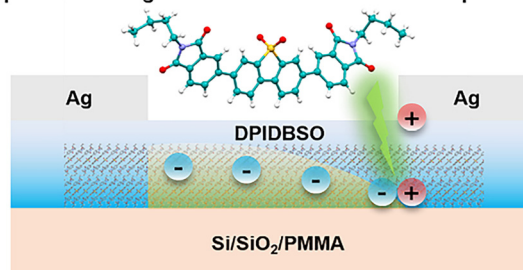
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13448

Dibenzothiophene sulfone-based n-type emissive organic semiconductor

Xianneng Chen, Qingbin Li,* Yumin Liu, Shaoqing Guan, Pu Wang, Ziyi Xie, Xiangyu Tan, Dan Liu, Molin Shen, Can Gao, Shiming Zhang* and Huanli Dong*

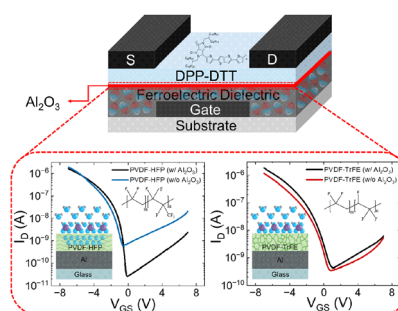
N-type emissive organic semiconductor towards unipolar OLET



13454

Engineered semiconductor-dielectric interfaces in polymer ferroelectric transistors

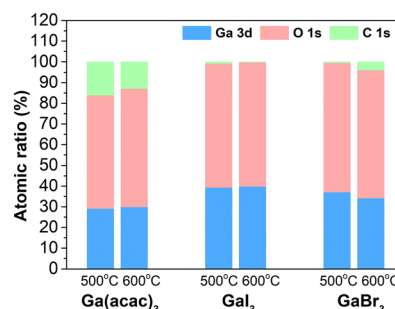
Arash Ghobadi, Thomas B. Kallaos, Indeewari M. Karunaratne, Dilan M. Gamachchi, Andrew C. Meng, Joseph C. Mathai, Shubhra Gangopadhyay and Suchismita Guha*



13464

Tailoring Ga₂O₃ epitaxial films on sapphire: impact of gallium ligand precursors and growth temperature using mist-CVD

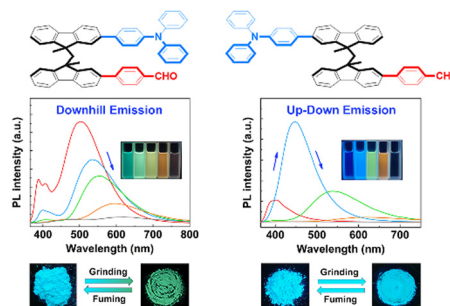
Jang Hyeok Park, Chowdam Venkata Prasad, Ho Jung Jeon, Madani Labeled and You Seung Rim*



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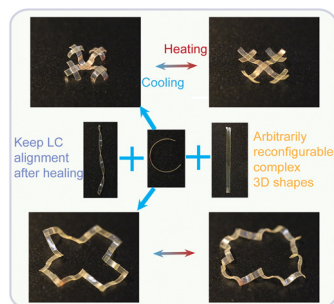
Isomeric intramolecular charge-transfer complexes: the effect of relative positions of the donor and acceptor on photophysical and mechanochromic properties

Meng Wang, Xiaofan Gai, Jianye Li, Yuqing Wei, Yinuo Shi, Xiaohui Cao and Guohui Yin*



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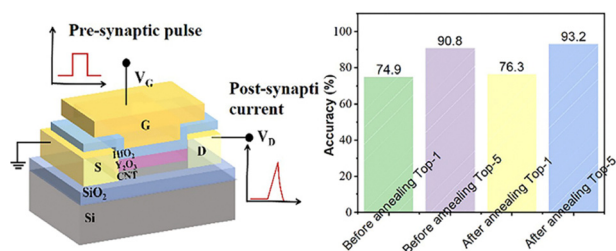
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Welding complex-shaped actuators from dynamic liquid crystal elastomers

Jie Jiang, Hongshuang Guo,* Hao Zeng and Arri Priimagi*

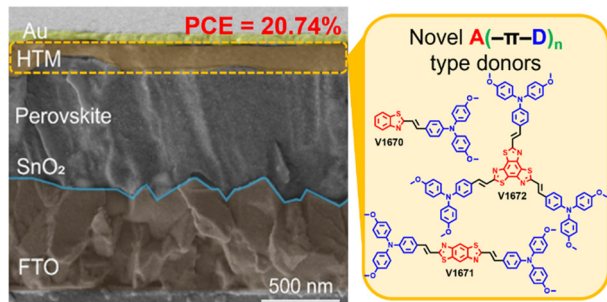
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Top gate overlaid carbon nanotube transistor electronic synapse arrays for high-performance image recognition

Zhenfei Hou, Gang Niu,* Yachuan Wang, Haoyan Meng, Jun Yang, Bin Zhang,* Yuan Zhao, Jie Li and Shengli Wu*

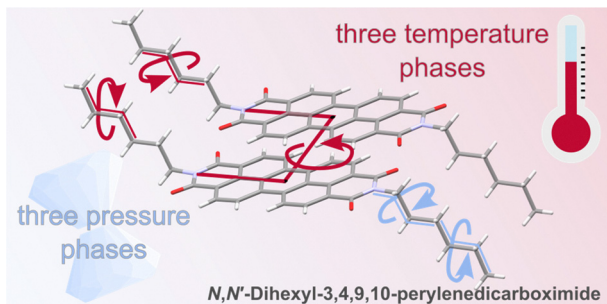
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Benzothiazole-based arylamines as hole transporting materials for perovskite solar cells

Povilas Luizys, Shun Tian, Kasparas Rakstys,* Roland C. Turnell-Ritson, Valdas Paulauskas, Vygtintas Jankauskas, Vytautas Getautis and Mohammad Khaja Nazeeruddin*

13509



Pressure- and temperature-driven transitions and conformational conversions of *n*-hexyl substituted perylene diimide (PDI-C₆) crystals

Paulina Ratajczyk, Szymon Sobczak, Michał Andrzejewski, Francesco Marin, Marianna Marchini, Lucia Maini* and Andrzej Katrusiak*

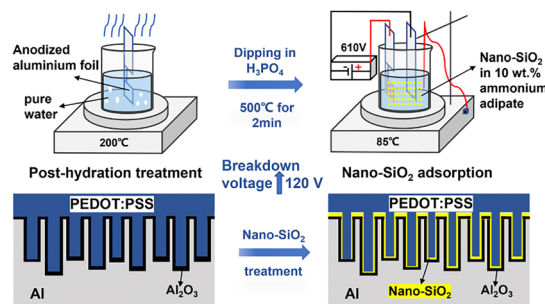


PAPERS

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Post-hydration treatment and nano-SiO₂ blocking defects in anodized aluminum foils to improve the breakdown voltage of a PEDOT:PSS solid electrolytic capacitor

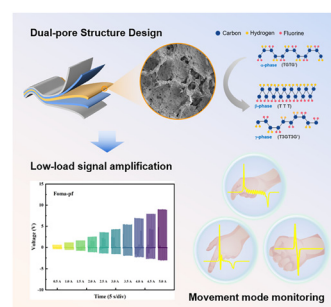
Shiheng Liu, Ruida Zhao, Jingyi An, Yizhuo Li, Yilong Jia and Youlong Xu*



13529

Enhanced piezoelectric output performance in flexible polyvinylidene fluoride foam with a hierarchical dual-pore structure

Xufeng Chen, Taiyan Ding, Xuemei Wu, Mengnan Qin, Quangan Cai, Haoyun Tai and Qi Li*



CORRECTIONS

13542

Correction: New frontiers in ceramic composites: tunable electromagnetic interference shielding by realizing negative permittivity in SnO₂/LaNiO₃ nanocomposites

Tarun Katheriya, Shukdev Pandey and Shail Upadhyay*

13543

Correction: Investigation of transcription factor–DNA binding with electrolyte-gated organic transistors

Matteo Sensi,* Andrea Ricci, Giovanna Rigillo, Alessandro Paradisi, Marcello Berto, Nerina Gnesutta, Carol Imbriano, Fabio Biscarini and Carlo Augusto Bortolotti

