Open Access Article. Published on 29 August 2024. Downloaded on 7/25/2025 7:26:46 PM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

Journal of Materials Chemistry C

Materials for optical, magnetic and electronic devices

rsc.li/materials-c

The Royal Society of Chemistry is the world's leading chemistry community. Through our high impact journals and publications we connect the world with the chemical sciences and invest the profits back into the chemistry community.

IN THIS ISSUE

ISSN 2050–7526 CODEN JMCCCX 12(34) 13153–13690 (2024)

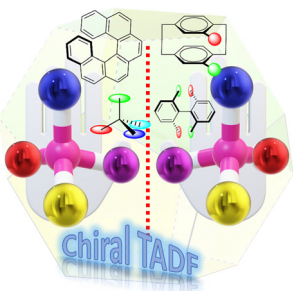
Cover
See Supree Pinitsoontorn, Michihiro Ohta *et al.*, pp. 13242–13254. Image reproduced by permission of Michihiro Ohta from *J. Mater. Chem. C*, 2024, **12**, 13242.

REVIEW

13168

Chirality inducing units in organic TADF molecules: a way to circularly polarized luminescence

Diksha Thakur and Sivakumar Vaidyanathan*

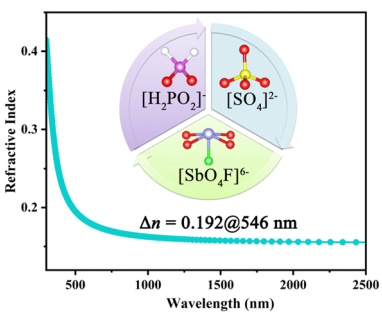


COMMUNICATIONS

13230

$RbSb(SO_4)(H_2PO_2)F$: a short-wave UV antimony(III) oxysalt with mixed-anions demonstrating enhanced birefringence

Jinwen Tan, Han Luo, Shiyi Wang, Ling Huang,* Liling Cao, Xuehua Dong and Guohong Zou*



View Article Online

ROYAL SOCIETY OF CHEMISTRY

60 YEARS ANNIVERSARY

Published on 07/05/2025 7:26:46 PM.
Downloaded on 7/25/2025 7:26:46 PM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

ChemComm

Uncover new possibilities with outstanding preliminary research

Original discoveries, fuelling every step of scientific progress

rsc.li/chemcomm

Fundamental questions
Elemental answers

Registered charity number: 207890

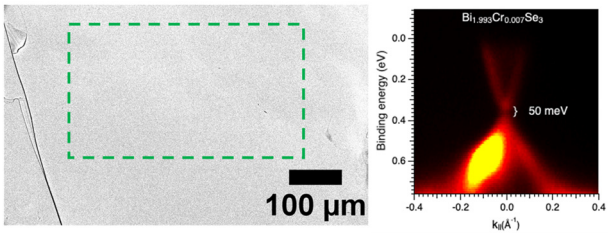
Open Access Article. Published on 29 August 2024. Downloaded on 7/25/2025 7:26:46 PM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

COMMUNICATIONS

13236

Single crystal synthesis and surface electronic structure of $Bi_{1.993}Cr_{0.007}Se_3$

Sandra Gardonio,* Zipporah Rini Benher, Mattia Fanetti, Paolo Moras, Polina M. Sheverdyaeva and Matjaz Valant

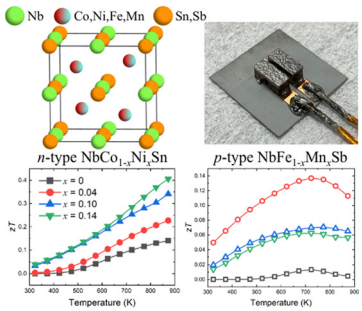


PAPERS

13242

Power generation from n-type $NbCo_{1-x}Ni_xSn$ and p-type $NbFe_{1-x}Mn_xSb$ ternary half-Heusler compounds: from materials development to module fabrication

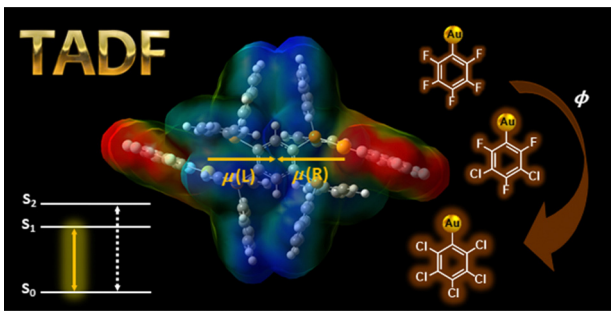
Piyawat Piyasin, Supree Pinitsoontorn,*
Philipp Sauerschnig, Kazuki Imasato and Michihiro Ohta*



13255

Improving the quantum yield of luminescence for three-coordinated gold(I) TADF emitters by exploiting inversion symmetry and using perhaloaryl ligands

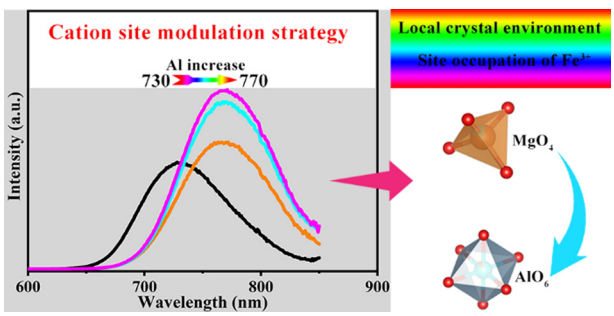
Inés Soldevilla, Abdel Ghafour El-Hachimi, Ruslan Ramazanov, Rashid R. Valiev, M. Elena Olmos, Miguel Monge, Dage Sundholm, María Rodríguez-Castillo* and José M. López-de-Luzuriaga*



13268

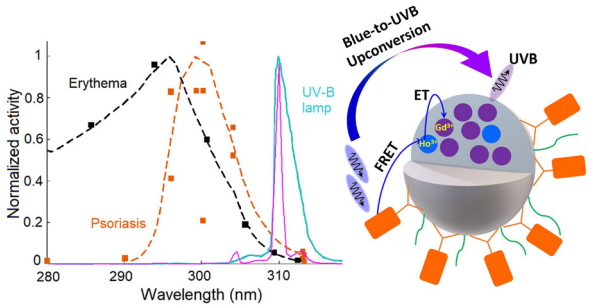
Achieving spectrally tunable and thermally stable near-infrared emission in Fe^{3+}-activated spinel phosphors *via* the cation site modulation strategy

Zhihao Zhou, Hongjun Jiang, Jingwen Wei, Zhuowei Fei, Bozhao Yin, Jianrong Qiu, Zhongmin Yang and Guoping Dong*



Open Access Article. Published on 29 August 2024. Downloaded on 7/25/2025 7:26:46 PM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

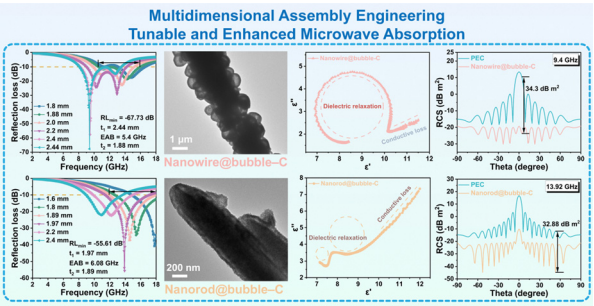
13279



Harnessing lanthanides for blue-to-UVB upconversion and its dye-sensitization

Dechao Yu, Benchun Li, Arend Zhang, Jasper Pol, Dawei Zhang, Songlin Zhuang and Difei Zhou*

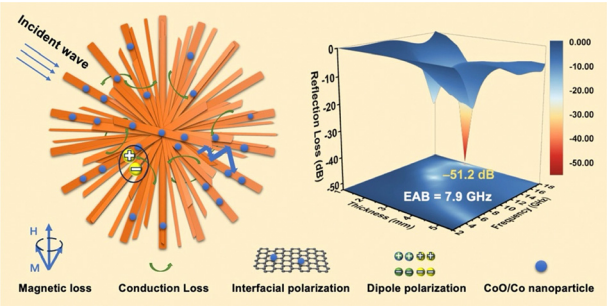
13289



Metal–organic framework derivatives with gradient structures *via* multidimensional assembly engineering for tunable efficient microwave absorption

Zhe Zhang, Jiewu Cui,* Dongbo Yu, Pengjie Zhang, Yong Zhang, Song Ma, Wei Sun, Xiaohui Liang and Yucheng Wu*

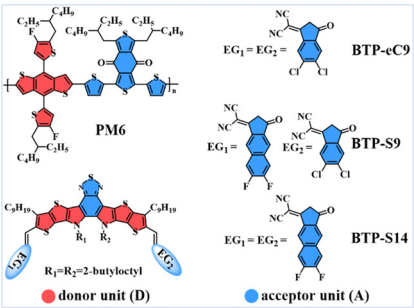
13302



Construction of urchin-like porous Co/CoO/C composites enabling high-performance wideband electromagnetic wave absorption

Hui-Min Wen,* Zhihan Huang, Qu Hong, Chang He, Tianyue Dai, Hongdu Jin, Minrui Chen, Jiannan Pan and Jun Hu*

13311



Multiscale computational analysis of the effect of end group modification on PM6:BTP-*x* OSCs performance

Qingxing Wu, Chongchen Xiang, Guangjun Zhang,* Yingping Zou* and Wanqiang Liu*

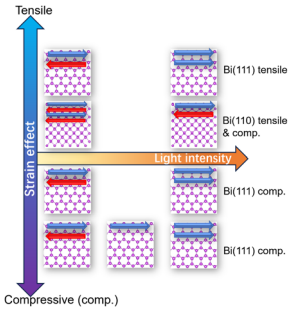
This journal is © The Royal Society of Chemistry 2024

Open Access Article. Published on 29 August 2024. Downloaded on 7/25/2025 7:26:46 PM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

13325

Tunable light-induced topological edge states in strain engineering of bismuthene monolayers

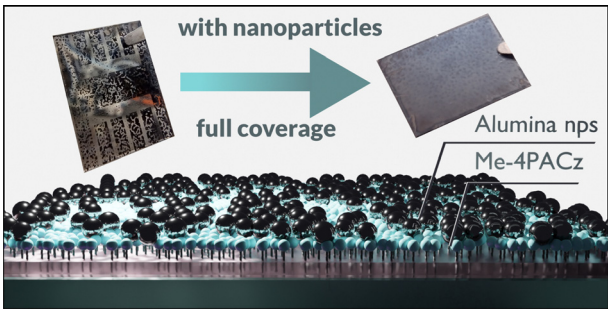
Xiangru Kong,* Binyuan Zhang, Wei-jiang Gong and Linyang Li*



13332

Alumina nanoparticles enable optimal spray-coated perovskite thin film growth on self-assembled monolayers for efficient and reproducible photovoltaics

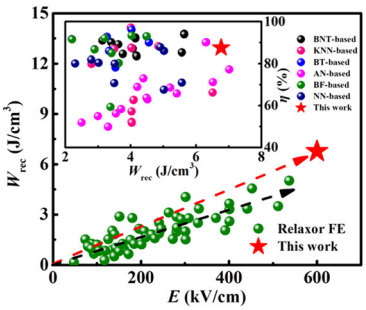
Elena J. Cassella, Robert D.J. Oliver, Timothy Thornber, Sophie Tucker, Rehmat Goodwin, David G. Lidzey* and Alexandra J. Ramadan*



13343

Modulation of oxygen vacancies optimized energy storage density in BNT-based ceramics *via* a defect engineering strategy

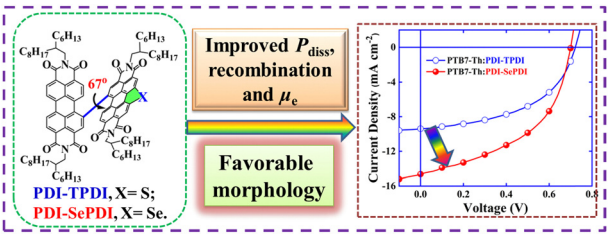
Yang Zhang,* Yihao Shen, Luomeng Tang, Jianwen Chen* and Zhongbin Pan*



13353

Boosting solar cell performance during highly thermo- and photo-stable asymmetric perylene diimide dimeric acceptors by selenium-annulation at the outside bay position

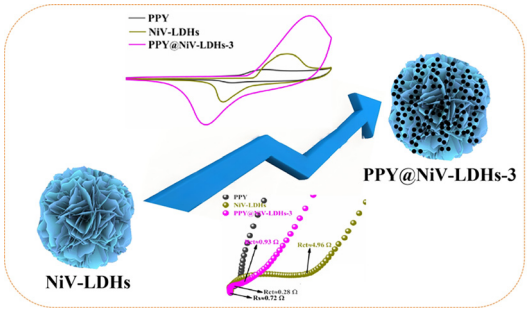
Junfeng Tong,* Jiayu Fang, Lili An, Youzhi Huo, Fushui Di, Pengzhi Guo, Chunyan Yang, Zezhou Liang, Jianfeng Li and Yangjun Xia*



Open Access Article. Published on 29 August 2024. Downloaded on 7/25/2025 7:26:46 PM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

PAPERS

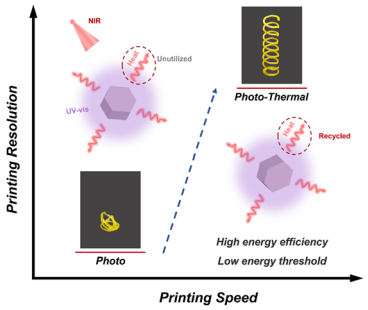
13365



***In situ* firmly anchored polypyrrole on NiV-LDHs for efficient aqueous-system asymmetric supercapacitors**

Guiquan Liu, Tianhao Ren, Haiyang Zhai, Guorong Wang* and Zhiliang Jin*

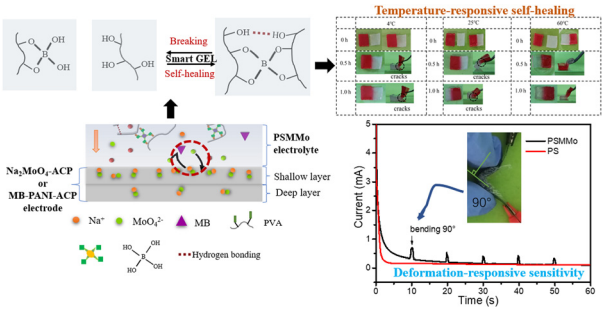
13379



Photothermal synergy mechanism in near-infrared photopolymerization for 3D printing acceleration and mechanical enhancement

Wei Wu, Hang Xu, Jia-Tao Miao, Xiucheng Zou* and Ren Liu*

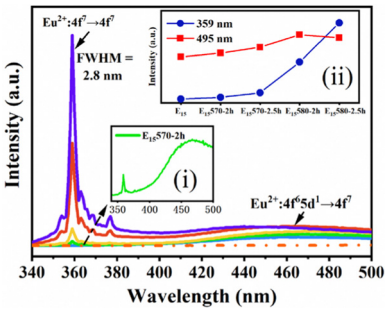
13388



A self-healing and deformation responsive supercapacitor fabricated using a smart gel polymer electrolyte and a redox-activated electrode

Yiting Wang and Yibing Xie*

13411



f → f transition luminescence of Eu^{2+} in barium–aluminum–borate oxyfluoride glass ceramics

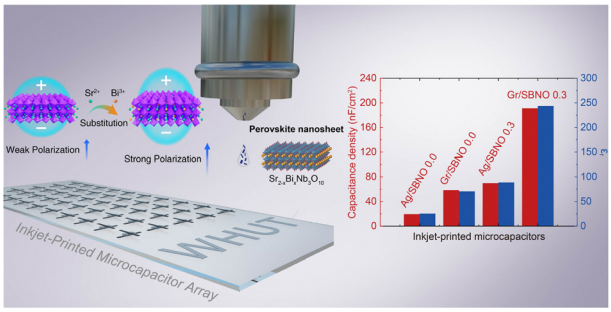
Mingjun Zhao, Panting Wang, Chongyun Shao, Weichang Li, Danping Chen* and Wei Chen*

This journal is © The Royal Society of Chemistry 2024

13421

Unveiling the synergistic effect of A-site doping in perovskite nanosheets and electrode modulation for boosting dielectric performance of printed microcapacitors

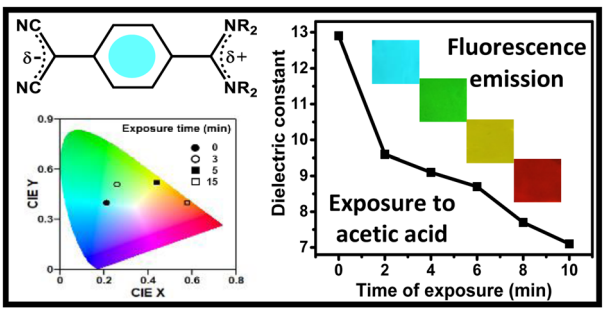
Pengxiang Zhang, Binbin Zhang, Feng Dang, Ce-Wen Nan and Bao-Wen Li*



13430

Tuning the fluorescence emission of DADQ based molecular solids by dielectric environment variation

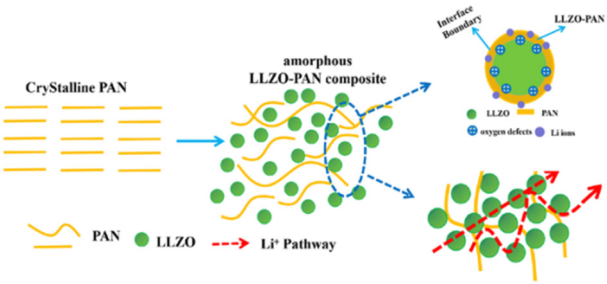
Nikita Mahajan and T. P. Radhakrishnan*



13439

Constructing highly functional oxygen defect $Li_7La_3Zr_2O_{12}$-polyacrylonitrile composite electrolytes for all-solid state lithium-ion batteries

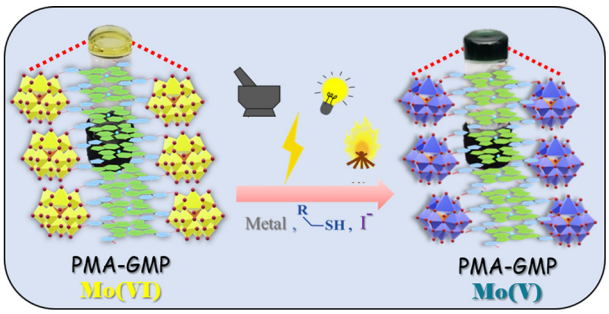
Hualing Tian, Yanhui Zhang, Yanjun Cai,* Xiang Yao and Zhi Su*



13447

A multi-stimuli responsive polyoxometalate-guanosine monophosphate hybrid chromogenic smart hydrogel

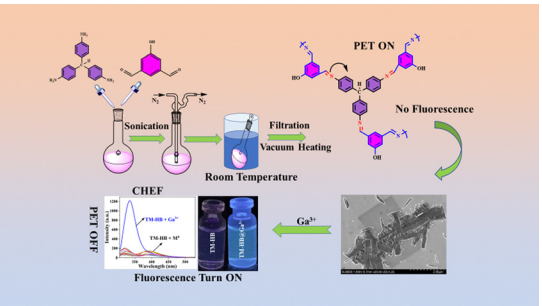
Amrita Chakraborty, Tanushree Ghosh, Suryakamal Sarma, Vidhi Agarwal, Rajesh Kumar* and Tridib K Sarma*



Open Access Article. Published on 29 August 2024. Downloaded on 7/25/2025 7:26:46 PM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

Open Access Article. Published on 29 August 2024. Downloaded on 7/25/2025 7:26:46 PM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

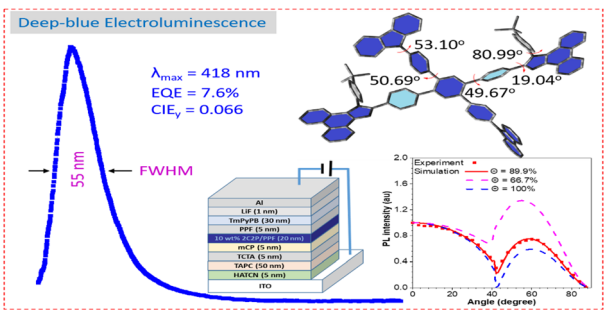
13457



New imine-linked conjugated mesoporous polymer for the turn-on fluorescence detection of Ga^{3+}

Zeeshan Ali, Tingyan Huo, Uzma Sattar and Guang Wang*

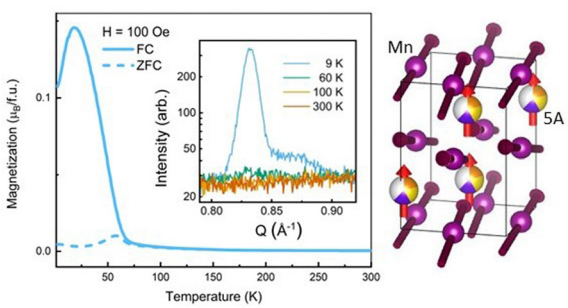
13466



Windmill-type molecules for efficient deep-blue organic light-emitting diodes *via* hybridized local and charge-transfer excited state

Huihui Li, Min Wang, Ziting Zhong, Hua Lu,* Zujin Zhao* and Xin Jiang Feng*

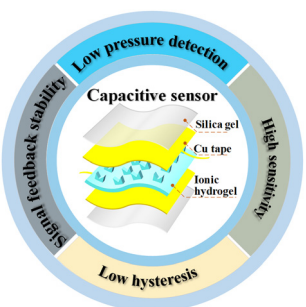
13474



Magnetic structure and properties of the compositionally complex perovskite $(Y_{0.2}La_{0.2}Pr_{0.2}Nd_{0.2}Tb_{0.2})MnO_3$

Nathan D. Arndt,* Brianna L. Musicó, Kausturi Parui, Keon Sahebkar, Qiang Zhang, Alessandro R. Mazza, Megan M. Butala, Veerle Keppens, T. Zac Ward and Ryan F. Need*

13485



A highly sensitive and flexible capacitive pressure sensor based on an ionic hydrogel dielectric layer with a lateral-bending microstructure

Haidi Qiao, Xia Liu,* Xingyu Zhang, Jiayue Zhang, Mingjie Yin and Qingsheng Yang

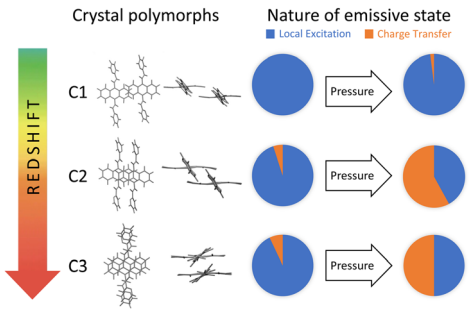
This journal is © The Royal Society of Chemistry 2024

Open Access Article. Published on 29 August 2024. Downloaded on 7/25/2025 7:26:46 PM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

13495

Modeling of pressure-induced charge transfer character in piezoluminescent pyridylvinylanthracene crystals

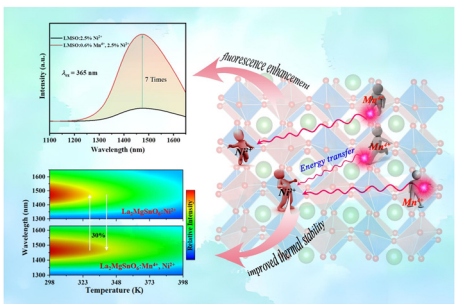
Josianne Owona, David Casanova, Lionel Truflandier, Frédéric Castet* and Claire Tonnelé*



13508

Enhanced NIR emission and thermal stability of La_2MgSnO_6:Mn^{4+},Ni^{2+} *via* energy transfer

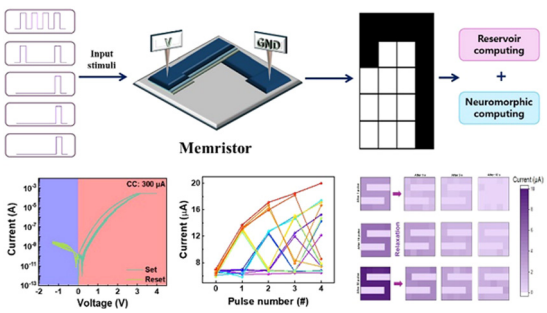
Yuhao Liu, Cong Dou, Fan Dou, Zihan Zhang, Xuan Gao, Hongzhe Zhang, Sitong Wang, Xiaoming Wang* and Huan Jiao*



13516

Dynamic memristor array with multiple reservoir states for training efficient neuromorphic computing

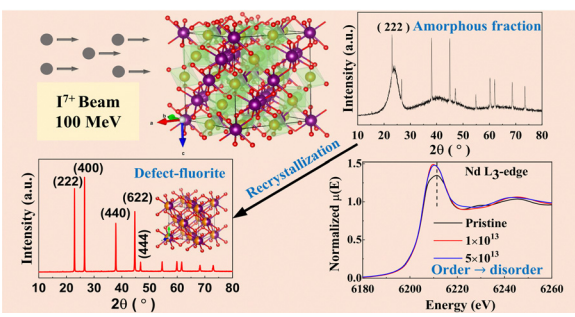
Minseo Noh, Dongyeol Ju and Sungjun Kim*



13525

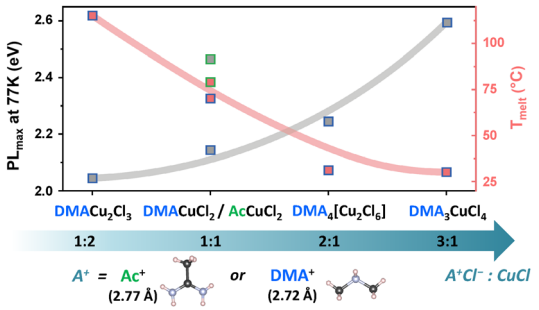
Investigation of local structure and phase recovery in an irradiated $Nd_2Zr_2O_7$ pyrochlore

Yogendar Singh, S. K. Sharma, Vivek Kumar, Parasmani Rajput, Gouranga Manna and P. K. Kulriya*



Open Access Article. Published on 29 August 2024. Downloaded on 7/25/2025 7:26:46 PM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

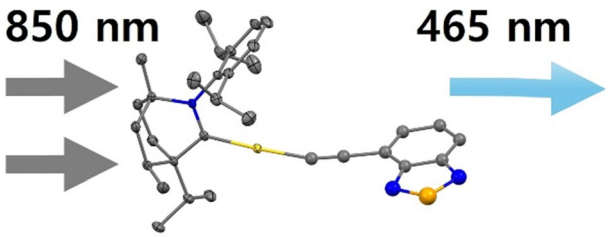
13537



Bright luminescence of new low-melting copper(I) chlorides with compact organic cations

Daria E. Belikova, Sergey A. Fateev, Victor N. Khrustalev, Vladislava Kozhevnikova, Artem A. Ordinartsev, Alexander V. Dzuban, Eugene A. Goodilin and Alexey B. Tarasov*

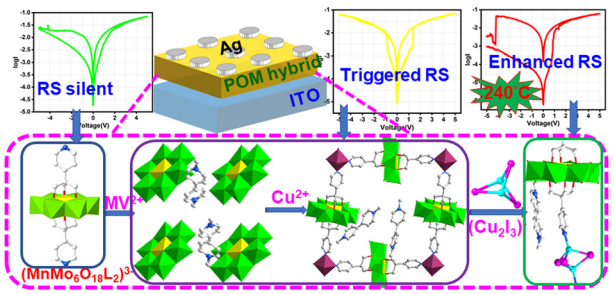
13545



Unity fluorescent carbene–gold(I)–acetylide complexes with two-photon absorption and energy-efficient blue FOLEDs

Alexander C. Brannan, Hwan-Hee Cho, Jonathan Daniel, Amelia J. Harvey, Charles T. Smith, Nguyen Le Phuoc, Mikko Linnolahti,* Mireille Blanchard-Desce,* Neil C. Greenham* and Alexander S. Romanov*

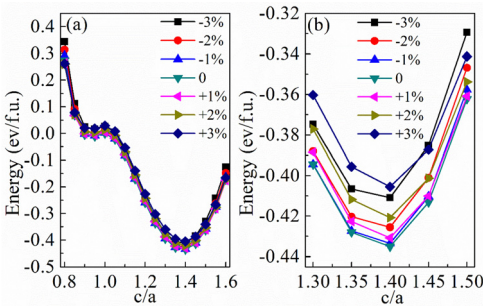
13555



Exploring the role of viologen and iodocuprate in the enhanced resistive switching performance of Anderson polyoxometalate-based three-component hybrids

Huai-Bin Chen, Mei-Yun He, Tao Li, Chu-Chu Deng, Hui-Ping Xiao, Ming-Qiang Qi, Xiang-Jian Kong, Hao-Hong Li,* Xin-Xiong Li* and Shou-Tian Zheng*

13562



Interface compatibility-induced quasi-volume-preserving martensitic phase transition in all-d-metal Co_2NiT (T = Ti and V) Heusler compounds

Tianyu Lv, Guijiang Li,* Qihang Sun and Yi Zheng

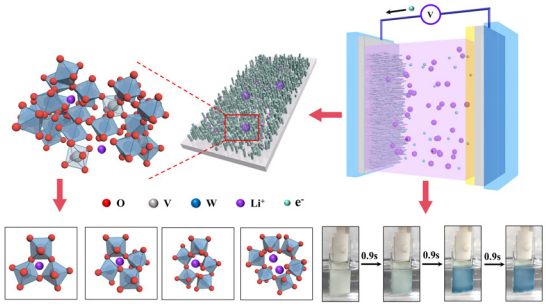
This journal is © The Royal Society of Chemistry 2024

Open Access Article. Published on 29 August 2024. Downloaded on 7/25/2025 7:26:46 PM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

13572

Enhanced electrochromic properties and amphoteric coloration of V-doped WO_3 supported by electronic structure optimization and oxygen vacancy-mediated Li^+ capture structures

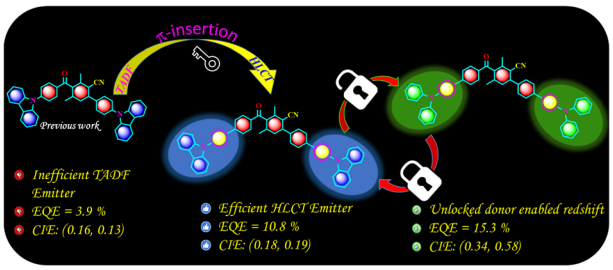
Shanshan Nie, Mengnan Ruan, Yi Lian, Lei Zhao, Jicun Shi and Zhifeng Liu*



13585

Tailoring structural rigidity utilizing a lock/unlock donor strategy for highly efficient solution processed blue and green HLCT OLEDs

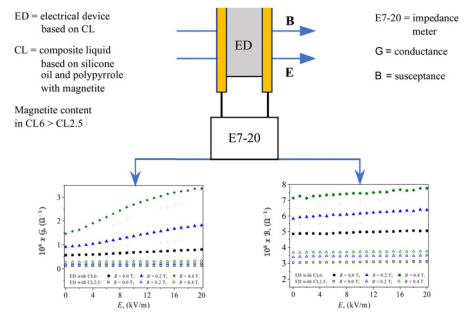
Md Intekhab Alam, Mangey Ram Nagar, Debika Barman, Parameswar Krishnan Iyer, Jwo-Huei Jou and Sivakumar Vaidyanathan*



13596

Electromagnetic modulation of conductance and susceptance in electrical devices based on silicone oil with polypyrrole–magnetite particle composites

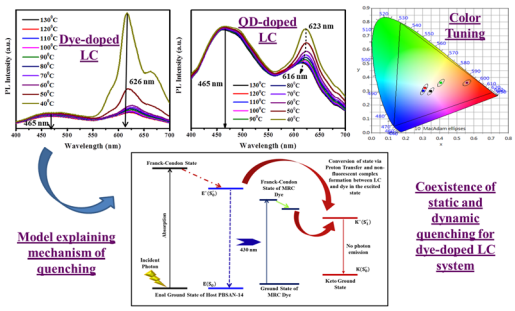
Ioan Bica, Eugen Mircea Anitas,* Michal Sedlacik,* Andrei Munteanu, Lenka Munteanu, Larisa Marina Elisabeth Chirigiu and Marek Jurca



13609

ESIPT-active columnar liquid crystal: organic dyes and quantum dots-assisted fluorescence modulation

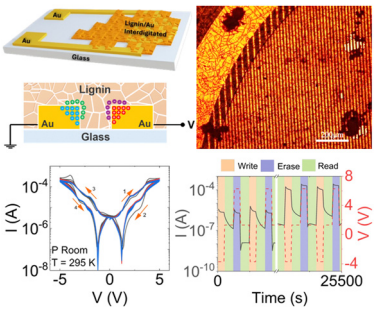
Shikha Agarwal, Santosh Y. Khatavi, Bhupendra Pratap Singh, Madhu Babu Kanakala, Pralay Kumar Santra, Sandeep Kumar, Chi-Yen Huang, Channabasaveshwar V. Yelamaggad* and Rajiv Manohar*



Open Access Article. Published on 29 August 2024. Downloaded on 7/25/2025 7:26:46 PM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

PAPERS

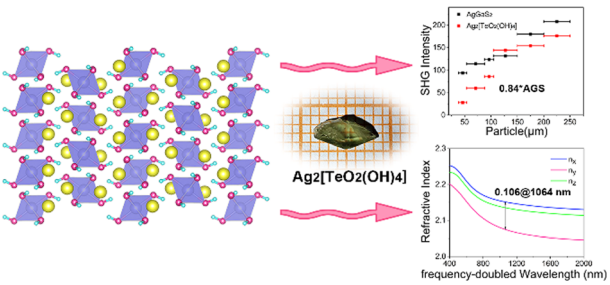
13621



Resistive switching memory from dielectric lignin for sustainable electronics

Sebastiano De Stefano, Ofelia Durante,* Rosarita D'Orsi, Alessandra Operamolla, Marianna Ambrico,* Paolo Francesco Ambrico, Nadia Martucciello, Filippo Giubileo and Antonio Di Bartolomeo

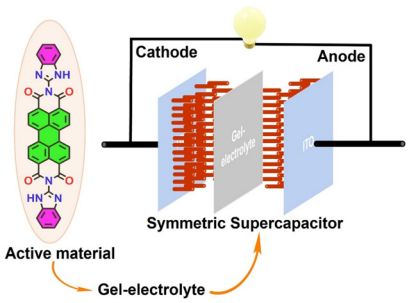
13632



$Ag_2[TeO_2(OH)_4]$: a nonlinear optical tellurate with balanced comprehensive performance

Wenjing Tan, Xuefan Wang, Ruqing Wei, Hongbo Huang, Daqing Yang, Ying Wang and Bingbing Zhang*

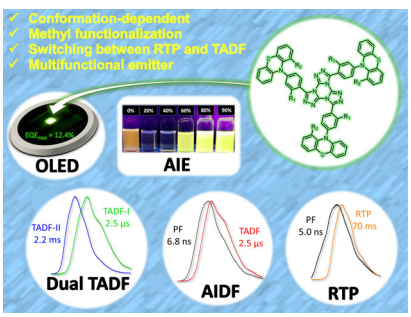
13639



"All-organic" electrode materials toward high-performing rigid to flexible supercapacitor devices

Pradeep Sachan, Priyanka Makkar, Ankur Malik and Prakash Chandra Mondal*

13651



Multifunctional tris(triazolo)triazine-based emitter with dual-TADF, RTP, AIEE and AIDF properties

Marli Ferreira,* Nícolas Oliveira Decarli, Aleksandra Nyga, Karol Erfurt, Jaijanarthanan Lingagouder, Leonardo Evaristo de Sousa, Laure de Thieulloy, Piotr de Silva* and Przemyslaw Data*

This journal is © The Royal Society of Chemistry 2024

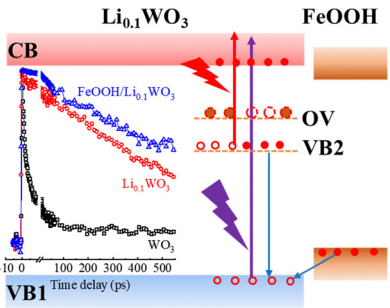
Open Access Article. Published on 29 August 2024. Downloaded on 7/25/2025 7:26:46 PM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

PAPERS

13665

Deciphering the carrier dynamics enhancement in WO_3-containing composites: an ultrafast transient reflectance investigation

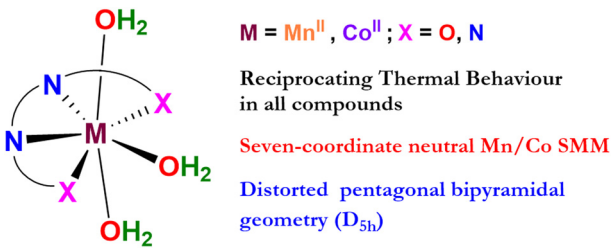
Haijuan Zhang,* Tianxiang Jiang, Meiqiong Zhan, Haiping Li* and Faming Lu*



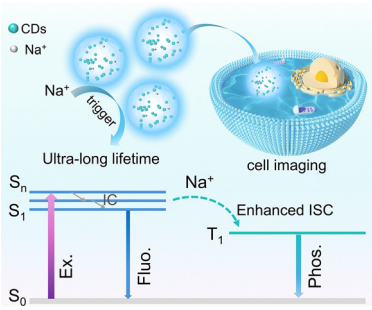
13672

Reciprocating thermal behaviour in a series of 7-coordinate Mn(II) and Co(II) complexes

Le-Shan Zhang, Xin-Xin Jin, Li-Xin Wang, Lu-Lu Liu, Rui-Yue Qi, Xu Zhang, Bing-Wu Wang, Jing Xiang,* Ji-Yan Liu* and Song Gao



13681

Na^+: the key to ultra-long afterglow lifetimes of CDs in dense SiO_2 matrices

Yimeng Luo, Qin Jiang, Xinyu Huang, Jiahao Dong, Yiyi Zhou, Feiyan Huang, Xuelin Liao, Jianle Zhuang, Chaofan Hu, Mingtao Zheng, Bingfu Lei, Yingliang Liu* and Jiangling He*