

# Journal of Materials Chemistry C

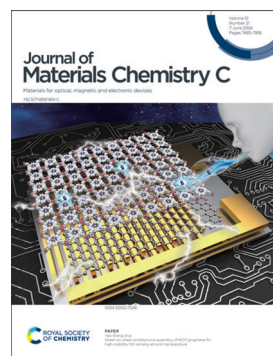
Materials for optical, magnetic and electronic devices

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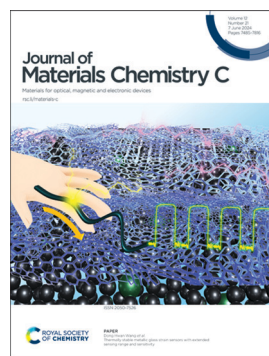
## IN THIS ISSUE

ISSN 2050-7526 CODEN JMCCCC 12(21) 7485-7816 (2024)



### Cover

See Yao Wang *et al.*, pp. 7520–7531. Image reproduced by permission of Yao Wang from *J. Mater. Chem. C*, 2024, 12, 7520.



### Inside cover

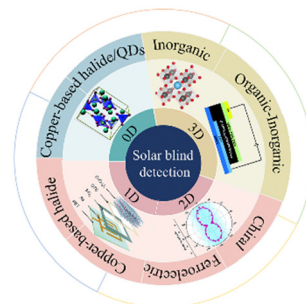
See Dong Hwan Wang *et al.*, pp. 7532–7541. Image reproduced by permission of Dong Hwan Wang from *J. Mater. Chem. C*, 2024, 12, 7532.

## REVIEW

7497

### Recent progress on solar blind deep ultraviolet photodetectors based on metal halide perovskites

Wanfang Yang, Yutian Lei and Zhiwen Jin\*

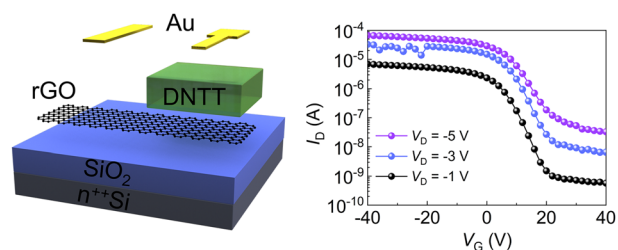


## COMMUNICATION

7513

### A design strategy for high-performance vertical organic field-effect transistors based on reduced graphene oxide electrodes

Kun Qiao,\* Tingfeng Dai and Tao Zou



$$J_{\text{on}} > 134 \text{ mA/cm}^2$$



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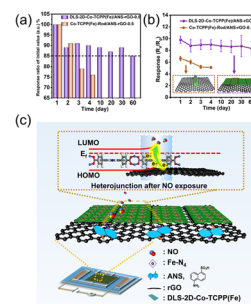
Fundamental questions  
Elemental answers



7520

### Sheet-on-sheet architectural assembly of MOF/graphene for high-stability NO sensing at room temperature

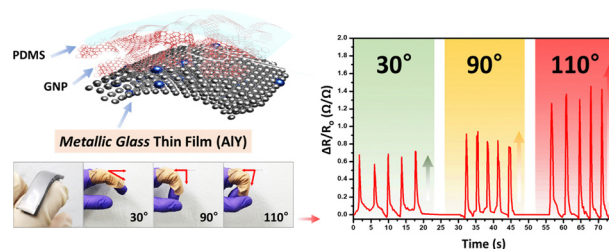
Yanwei Chang, Jingxing Zhang, Ruofei Lu, Weiran Li, Yuchen Feng, Yixun Gao, Haihong Yang, Fengnan Wang, Hao Li, Yi-Kuen Lee, Patrick J. French, Ahmad M. Umar Siddiqui, Yao Wang\* and Guofu Zhou



7532

### Thermally stable metallic glass strain sensors with extended sensing range and sensitivity

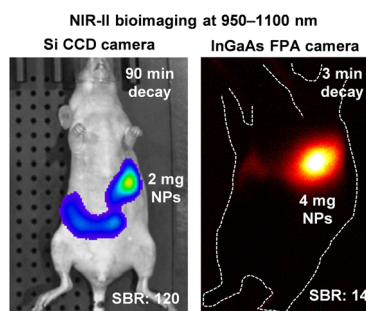
Jae Sang Cho, Woongsik Jang, Keum Hwan Park and Dong Hwan Wang\*



7542

### Deep-tissue NIR-II bioimaging performance of Si-based and InGaAs-based imaging devices using short-wave infrared persistent luminescence

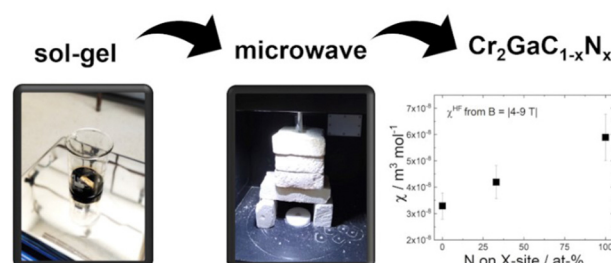
Yafei Chen,\* Simona Spinelli and Zhengwei Pan\*



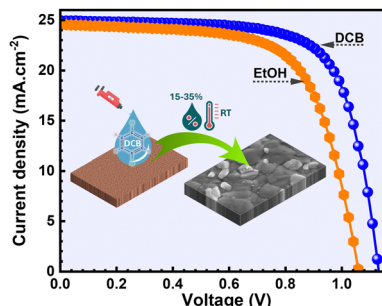
7552

### Between carbide and nitride MAX phases: sol-gel assisted synthesis and characterization of the carbonitride phase Cr<sub>2</sub>GaC<sub>1-x</sub>N<sub>x</sub>

Niels Kubitzka, Isabel Huck, Hanna Pazniak, Curran Kalha, David Koch, Bo Zhao, Pardeep K. Thakur, Tien-Lin Lee, Aysha A. Riaz, Wolfgang Donner, Hongbin Zhang, Benjamin Moss, Ulf Wiedwald, Anna Regoutz and Christina S. Birkel\*



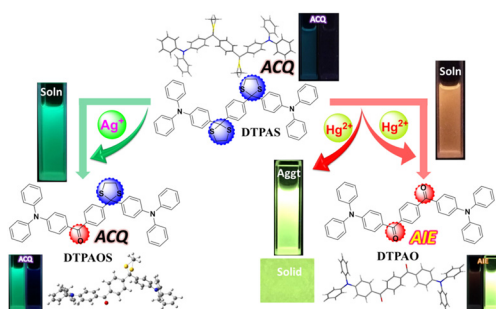
7562



### Anti-solvent engineering enables efficient ambient-processed halide perovskite solar cells

Ivy M. Asuo,\* Arezo Mahdavi Varposhti, Enrique D. Gomez and Nutifafa Y. Doumon\*

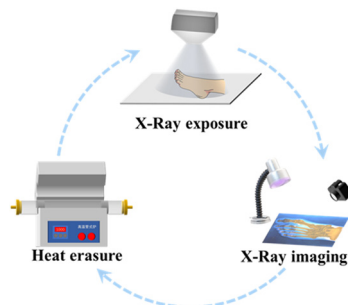
7572



### A novel fluorescent chemosensor enables dual-channel selective "turn-on" detection of Hg<sup>2+</sup> and Ag<sup>+</sup> via distinct thiophilic effects, essential mechanisms, and excellent sensing performance for mercury(II) in aggregated states

Zhijun Ruan,\* Xinyi Dong, Tao Long,\* Shanshan Liu, Yanmei Chen and Junqi Lin\*

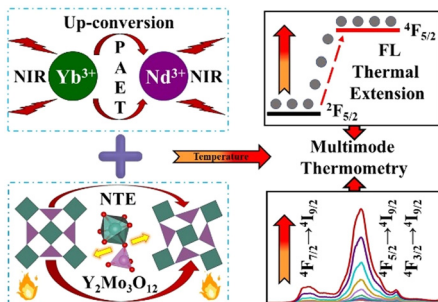
7580



### Valence regulation in europium-doped fluoride phosphor for high-resolution X-ray time-lapse imaging

Jian Zhang, Xin Li, Wei Zeng, Daiyuan Liu, Lan Lu, Heng Dai, Junheng Yuan, Jianxiong Shao, Zhichao Liu, Jie Yu\* and Xuhui Xu

7588



### Thermally enhanced NIR up-conversion fluorescence multimode thermometry based on Y<sub>2</sub>Mo<sub>3</sub>O<sub>12</sub>:Nd<sup>3+</sup>,Yb<sup>3+</sup>

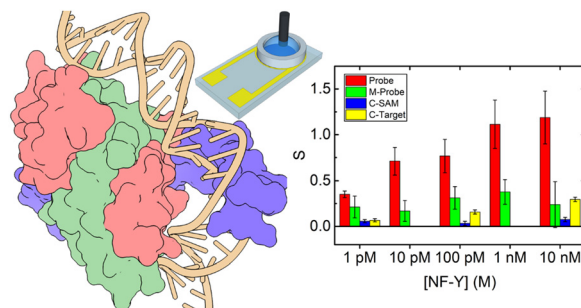
Yexuan Zhang, Minkun Jin, Wang Chen, Ziyang Wu, Zexun Li and Chongfeng Guo\*



7596

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

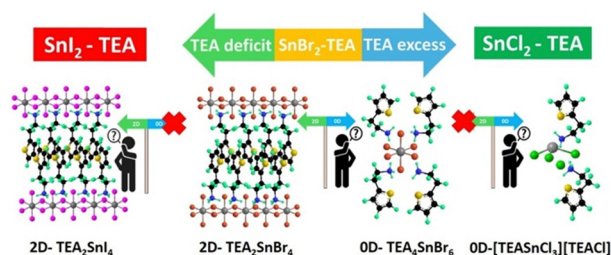
Matteo Sensi,\* Andrea Ricci, Giovanna Rigillo, Alessandro Paradisi, Marcello Berto, Nerina Gnesutta, Carol Imbriano, Fabio Biscarini and Carlo Augusto Bortolotti



7605

### Chemically driven dimensionality modulation of hybrid tin(II) halide perovskite microcrystals

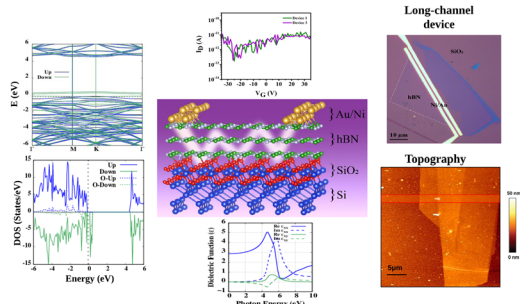
Raúl I. Sánchez-Alarcón, Omar E. Solís, María Cristina Momblona-Rincon, Teresa S. Ripolles,\* Juan P. Martínez-Pastor, Rafael Abargues\* and Pablo P. Boix\*



7615

### Current-in-plane tunneling measurement of oxygen-functionalized few-layer boron nitride lateral barriers

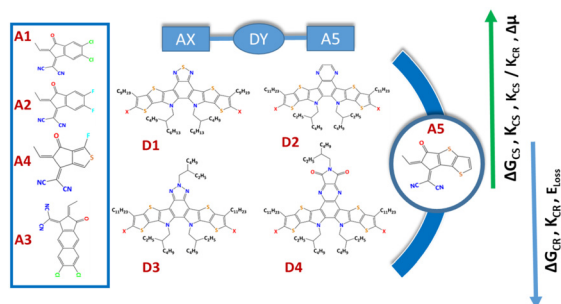
Ziba Torkashvand, Kavos Mirabbaszadeh,\* Farzaneh Shayeganfar,\* Pawan Kumar Srivastava, Changgu Lee and Mohadesse Beigtan



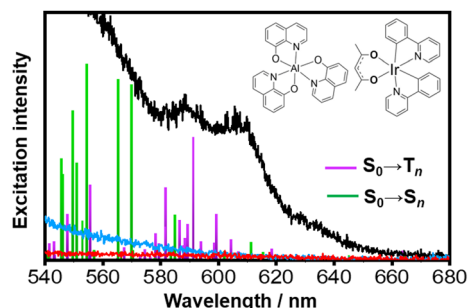
7627

### Unveiling symmetry: a comparative analysis of asymmetric and symmetric non-fullerene acceptors in organic solar cells

Rudranarayan Khatua and Anirban Mondal\*



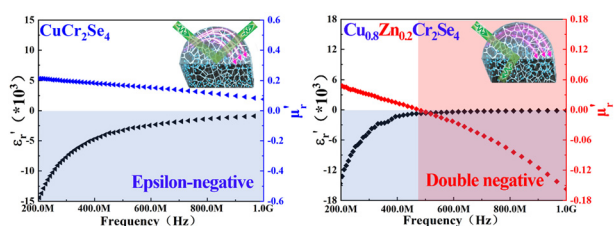
7637



### Crystalline confinement leads to broadening of absorption spectra through activated spin-forbidden transitions in Alq<sub>3</sub>-Irppy<sub>2</sub>acac engineered crystals

Yufang Nie, Heming Zhang,\* Jiaxuan Wang, Lianbao Ke, Semion K. Saikin,\* Hai Bi, Wangqiao Chen and Guofu Zhou\*

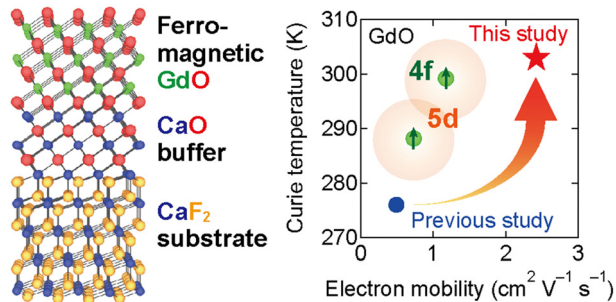
7644



### Modified Lossy epsilon-negative CuCr<sub>2</sub>Se<sub>4</sub> toward single-phase metamaterials with double negative parameters via Zn doping

Zechao Xu, Weiyi Lu, Kelan Yan,\* Runhua Fan and Ningzhong Bao\*

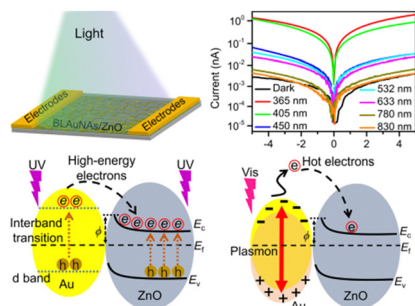
7652



### Enhanced Curie temperature near 300 K in highly crystalline GdO epitaxial thin films concomitant with an anomalous Hall effect

Takato Fukasawa, Dai Kutsuzawa, Daichi Oka,\* Kenichi Kaminaga, Daichi Saito, Hirokazu Shimizu, Hiroshi Naganuma and Tomoteru Fukumura\*

7658



### Heterostructures made from bone-like plasmonic Au nanoantennas and ZnO quantum dots for broadband photodetectors

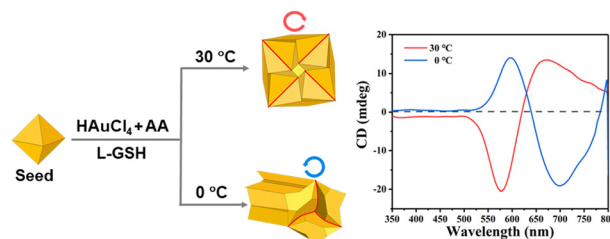
Bingwu Liu, Xi Xie, Yuan Feng, Pu Chen, Dong Li, Huan Cheng, Changjun Min,\* Qinglin Zhang\* and Jiawen Hu\*



7667

### Tuning chiral morphology of gold nanoparticles with reversed chiral signals by adjusting the reaction temperature of the seed-mediated growth process

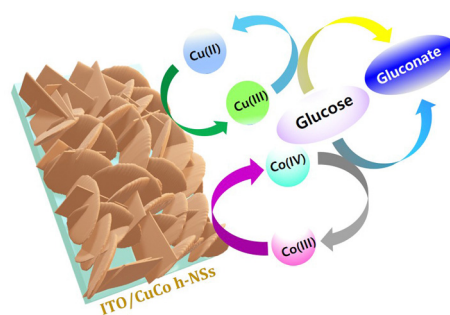
Qingyuan Liu, Miao Zhang, Chunli Xu\* and Baoxin Li\*



7673

### Methionine-assisted electrodeposition of porous copper cobalt bi-metallic hetero-nanostructures on an indium tin oxide electrode: a disposable and stable electrode for non-enzymatic glucose sensing

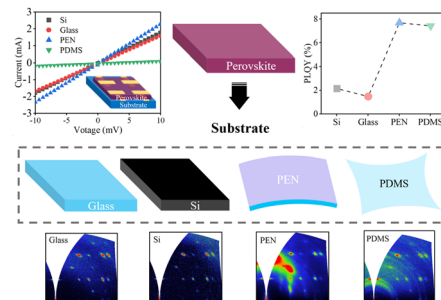
Perumal Viswanathan, Ji Won Kim, Shanmugam Manivannan and Kyuwon Kim\*



7684

### Substrate effects on structural and optoelectronic properties of quasi-2D perovskite films

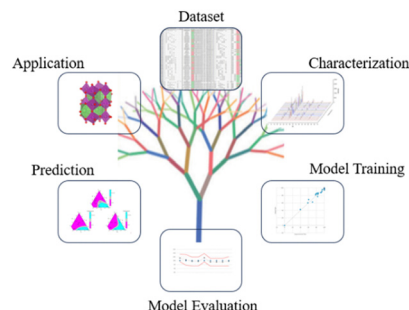
Chenyu Hu, Zhenmei He, Shuo Chen Wang, Lixuan Kan, Sanfeng Lei, Xixiang Zhu, Jinpeng Li, Kai Wang and Haomiao Yu\*



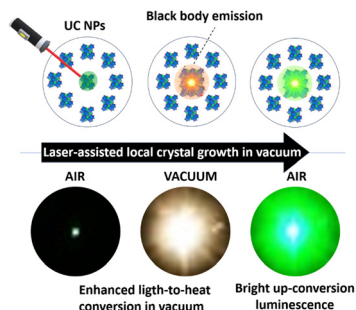
7695

### A chemometric approach for the design of lanthanum-based high entropy perovskite oxides

Luca Angelo Betti, Lisa Rita Magnaghi,\* Aldo Bosetti, Raffaella Biesuz and Lorenzo Malvasi\*



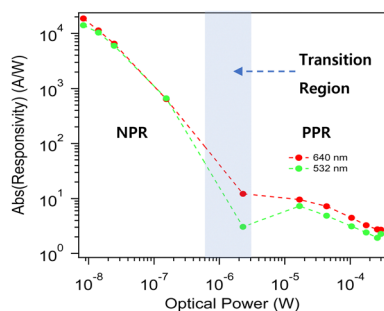
7707



### Vacuum-assisted colossal enhancement of up-conversion luminescence of lanthanide-doped nanoparticles upon NIR laser irradiation – a new strategy for phosphor development

Christian Hernández-Álvarez,\* Kevin Soler-Carracedo, Przemysław Woźny, Inocencio R. Martín\* and Marcin Runowski\*

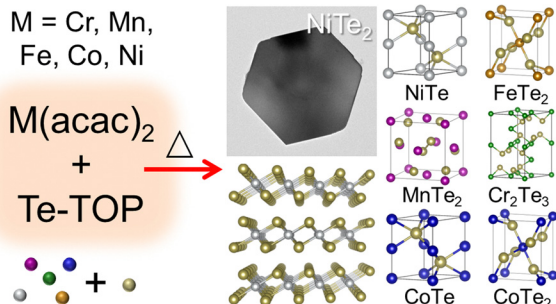
7715



### Transition of photoresponsivity in graphene–insulator–silicon photodetectors

Hong-Ki Park and Jaewu Choi\*

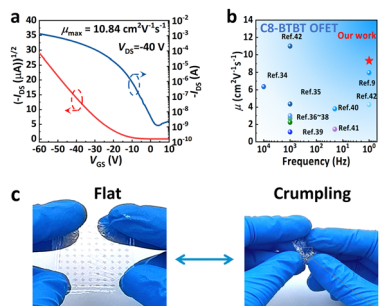
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### General synthesis of magnetic binary transition metal telluride nanocrystals

Jingxia Wang, Bin Wang, Yifen Wang, Ruixia Yang, Lanfang Wang, Fang Wang, Xiaohong Xu and Yang Liu\*

7732



### Antisolvent polysulfone dielectric for ultrastable solution-processed high-performance conformal organic transistor array

Mingxin Zhang, Mengqiao Du, Yanhong Tong,\* Xue Wang, Jing Sun, Shanlei Guo, Xiaoli Zhao, Qingxin Tang\* and Yichun Liu

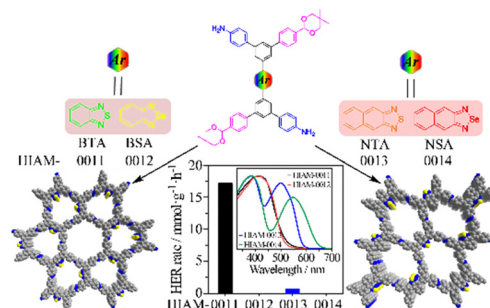




7741

## Facile synthesis of benzothiadiazole and its derivative-based covalent organic frameworks using "two-in-one" monomers for photocatalytic hydrogen generation

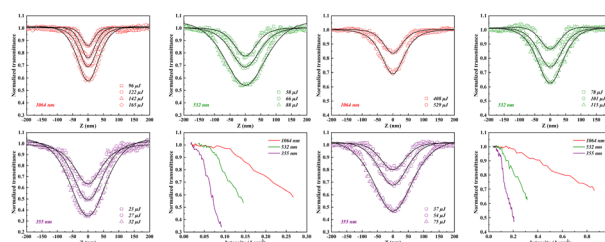
Jia-Xin Guo, Ze-Yang Wang, Chao-Qin Han, Shuai Sun, Lei Wang,\* Gonghao Lu\* and Xiao-Yuan Liu\*



7748

## 2D Ta<sub>4</sub>AlC<sub>3</sub> and Ta<sub>4</sub>C<sub>3</sub> nanosheets with excellent ultraviolet optical limiting behavior for laser protection

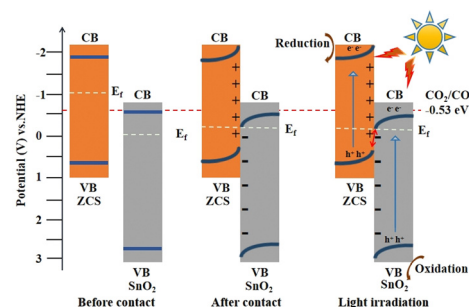
Binjian Du, Zhenyu Zhao, Zihan Ren, Qianhou Liu and Fang Zhang\*



7759

## Construction of a Zn<sub>0.65</sub>Cd<sub>0.35</sub>S/SnO<sub>2</sub> S-scheme heterojunction for efficient photocatalytic CO<sub>2</sub> reduction

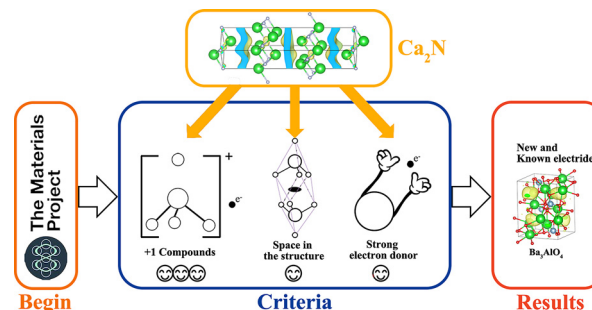
Tao Li, Xiong He, Junhao Wu, Guangyu Pan, Dandan Wang, Fan Zhang, Limin Gao,\* Haiquan Xie and Kui Li\*



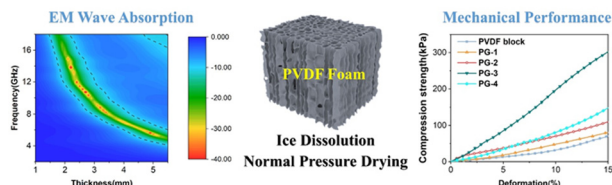
7766

## Assessing the design rules of electriles

Zhikun Yao, Yanzhen Zhao, Wenjun Zhang and Lee A. Burton\*



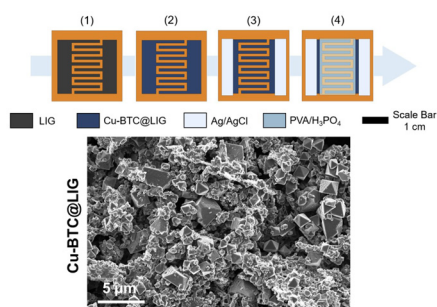
7775



Enhanced electromagnetic wave absorption and mechanical performances of graphite nanosheet/PVDF foams *via* ice dissolution and normal pressure drying

Xiaogang Su,\* Yu Zhang, Jun Wang and Yaqing Liu\*

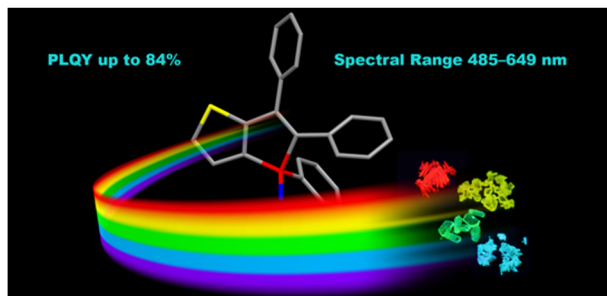
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Simple fabrication of laser-induced graphene functionalized with a copper-based metal-organic framework and its application in solid-state supercapacitors

Samuel Morales-Cámara, Victor Toral, Iñigo J. Vitorica-Yrezabal, Almudena Rivadeneyra, Luis Pereira, Sara Rojas and Francisco J. Romero\*

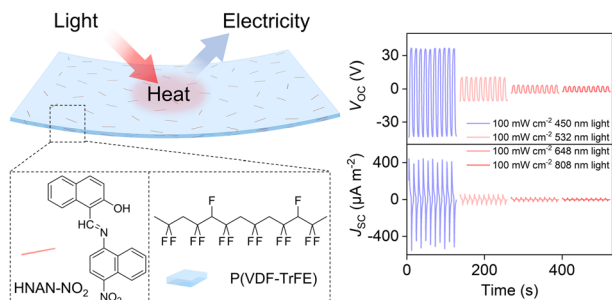
7797



Thieno[3,2-*b*]phosphole-based AIEgens: facile preparation and dual modulation of solid-state luminescence

Nils König, Justin Mahnke, Yokari Godínez-Loyola, Hendrik Weiske, Julian Appel, Peter Lönnecke, Cristian A. Strasser\* and Evamarie Hey-Hawkins\*

7807



Schiff base organic molecular crystals/ferroelectric polymer composite for photo-pyroelectric conversion

Zhaopeng Wang, Jie Liu and Baojin Chu\*

