

# Journal of Materials Chemistry C

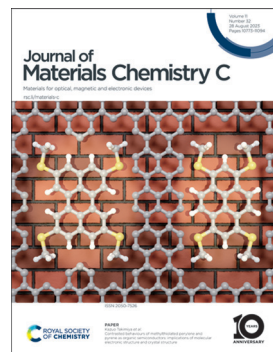
Materials for optical, magnetic and electronic devices

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## IN THIS ISSUE

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### Cover

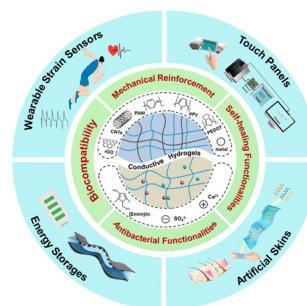
See Kazuo Takimiya  
et al., pp. 10809–10815.  
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*J. Mater. Chem. C*,  
2023, 11, 10809.

## REVIEW

10785

### Conductive hydrogels for bioelectronics: molecular structures, design principles, and operation mechanisms

Xiaoyang Zhang, Xin Chen,\* Zonghui Ye, Wentao Liu, Xuying Liu and Xianghong Wang\*

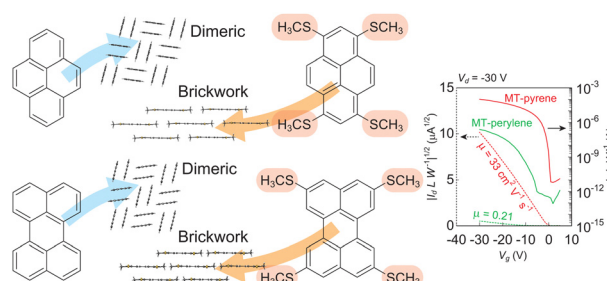


## PAPERS

10809

### Contrasted behaviours of methylthiolated perylene and pyrene as organic semiconductors: implications of molecular electronic structure and crystal structure

Kazuo Takimiya,\* Kirill Bulgarevich and Singo Horiuchi



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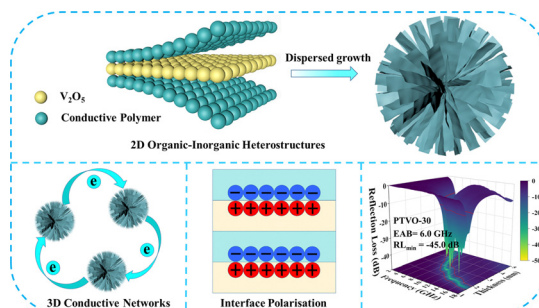


## PAPERS

10816

# Design of two-dimensional organic–inorganic heterostructures for high-performance electromagnetic wave absorption

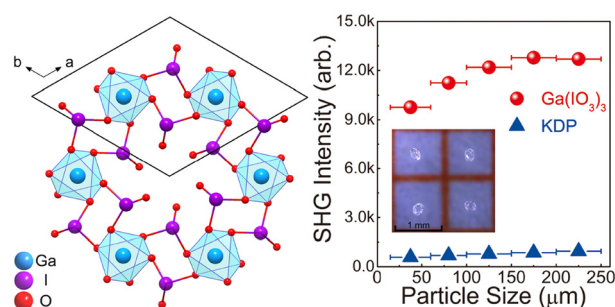
Jun Chen, Weiping Ye, Shuai Wang, Kunyao Cao, Yue Zhang, Jia yue Wen, Rui Zhao\* and Weidong Xue\*



10828

# Ga(IO<sub>3</sub>)<sub>3</sub>: a mid-IR nonlinear optical iodate with balanced performance between band gap and second harmonic generation response

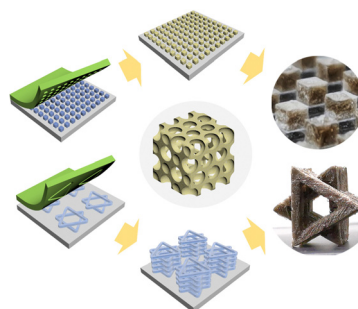
Dandan Wang, Xinyuan Zhang,\* Pifu Gong,\* Zheshuai Lin, Zhanggui Hu and Yicheng Wu



10834

# Freely-shapable fabrication of aerogel patterns and 3D architectures by freeze-assisted transfer printing

Wenbo Li, Jing Liu, Danyang Liu, Jing Li, Jiawei Wang, Jiongli Li, Xudong Wang,\* Meng Su,\* Chunbao Li\* and Yanlin Song



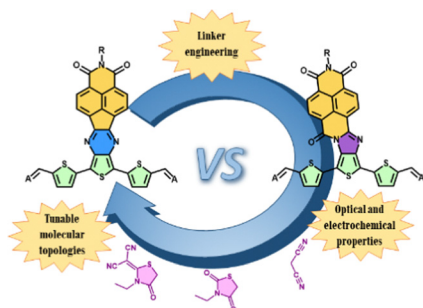
10843

# Cesium–lead–halide perovskite triggered visual platform: a disposable paper-based nano-temperature sensor for cold chain transport

Guosheng Cui, Min Li, Aori Qileng, Hui Yang, Mengting Chen, Weipeng Liu\* and Yingju Liu\*



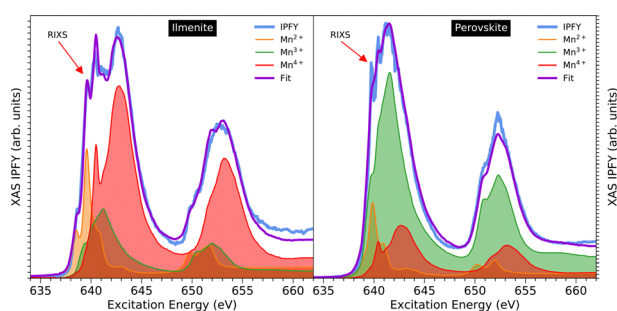
10852



### Tunable electroactive oligothiophene-naphthalimide semiconductors *via* end-capped engineering: cumulative effects beyond the linker

Matías J. Alonso-Navarro, Alexandra Harbuzaru, Raúl González-Núñez, M. Mar Ramos, José L. Segura\* and Rocío Ponce Ortiz\*

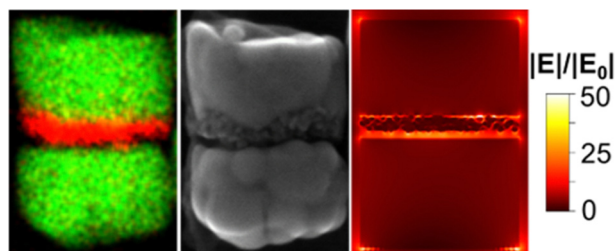
10864



### The electronic structure of novel high-pressure and high-temperature phases of $\text{Mn}_2\text{O}_3$ : exploring perovskite and ilmenite-type structures

Patrick M. Braun,\* Robert J. Green, Leonid Dubrovinsky, Sergey V. Ovsyannikov and Alexander Moewes

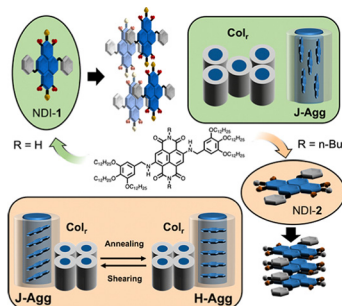
10872



### Rh in the gap: maximizing E-field enhancement within nanorod heterodimers

Joshua Piaskowski, Georg Haberfehlner, Theresa Bartschmid, Gerald Kothleitner, Martin Steinhart and Gilles R. Bourret\*

10884



### Columnar liquid-crystalline J-aggregates based on N-core-substituted naphthalene diimides

Eduardo Castellanos, Rosa Maria Gomila, Rasitha Manha, Gustavo Fernández, Antonio Frontera\* and Bartolomé Soberats\*

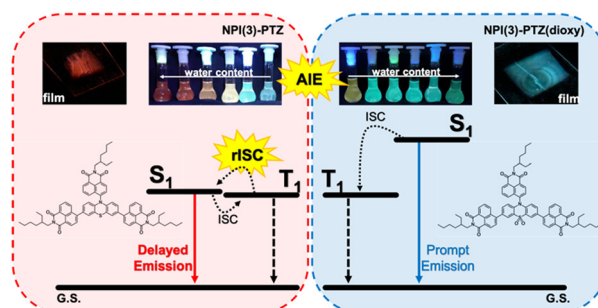


## PAPERS

10893

# Enabling red thermally activated delayed fluorescence by increasing the push–pull strength in naphthalimide-phenothiazine derivatives

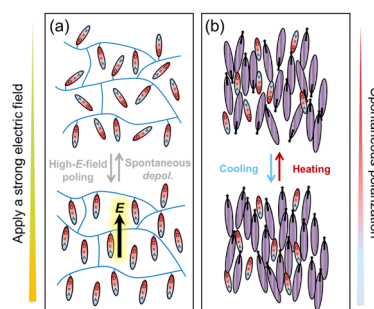
Chiara Montanari, Tommaso Bianconi, Manju Sheokand, Titouan Teunens, Giulia Cavalletti, Jérôme Cornil, Rajneesh Misra\* and Benedetta Carlotti\*



10905

# Achieving enhanced second-harmonic generation in ferroelectric nematics by doping D- $\pi$ -A chromophores

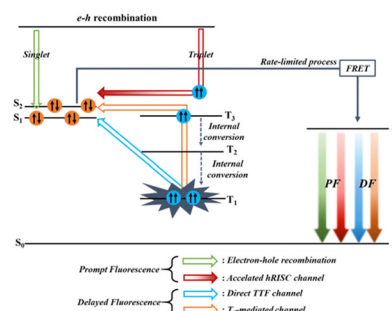
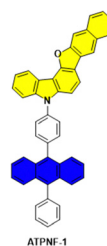
Runli Xia, Xiuhu Zhao, Jinxing Li, Huanyu Lei, Yaohao Song, Weifeng Peng, Xinxin Zhang, Satoshi Aya\* and Mingjun Huang\*



10911

# Asymmetric anthracene hosts decorated with naphthobenzofurocarbazole for highly efficient deep-blue organic light-emitting diodes and low-efficiency roll-off

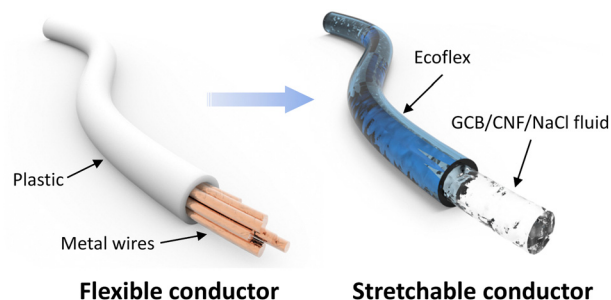
Yeonju Jeong, Kyo Min Hwang, Jae Hee Lee, Min Jeong Kwon, Taekyung Kim\* and Wan Pyo Hong\*



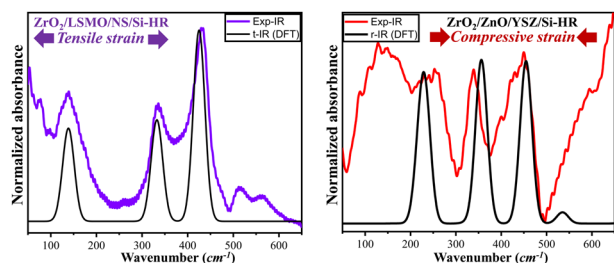
10923

# A self-compensating stretchable conductor based on a viscous fluid for wide-range flexible sensors

Minxuan Xu,\* Dafei Wei, Tengyue Song, Chun Dou, Yueqin Shi, Xin Li, Zhe Kong and Qi Zhang\*



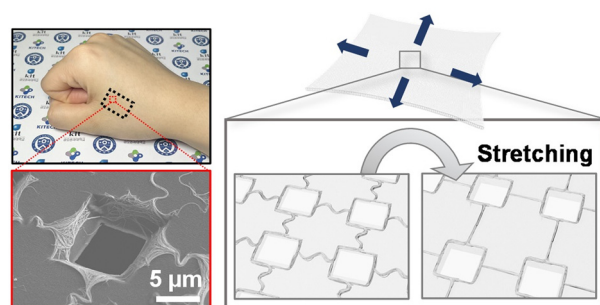
10931



### Ferroelectric ZrO<sub>2</sub> phases from infrared spectroscopy

Ali El Boutaybi,\* Rebecca Cervasio, Alban Degezelle, Thomas Maroutian, Jean-Blaise Brubach, Valérie Demange, Ludovic Largeau, Marine Verseils, Sylvia Matzen, Guillaume Agnus, Laurent Vivien, Panagiotis Karamanis, Michel Rérat, Pascale Roy and Philippe Lecoer

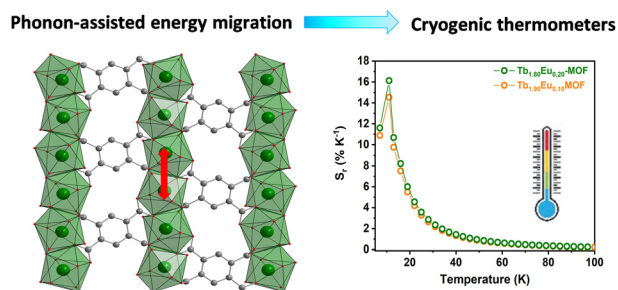
10942



### Skin breathable and stretchable electrode based on square-shaped AgNW bundle mesh with wavy bridges

Eun Young An, Siyoung Lee, Jeong Ho Cho, Geun Yeol Bae\* and Gyojic Shin\*

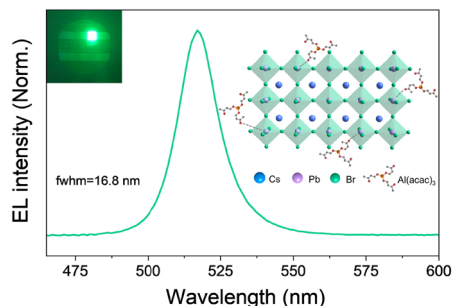
10951



### A new highly sensitive cryogenic luminescent MOF thermometer built with pyromellitic acid

Thibault Amiaud, Véronique Jubera and Hélène Serier-Brault\*

10957



### Aluminium acetylacetonate ligand passivation for CsPbBr<sub>3</sub> nanocrystals with improved stability and photoluminescence

Hao Yu, Bin Yan, Yonghui Song, Qiqi Zhao, Meng Gao, Liangmin Ning, Wei Chen, Min Fu, Kunhua Wang\* and Jianxu Ding\*

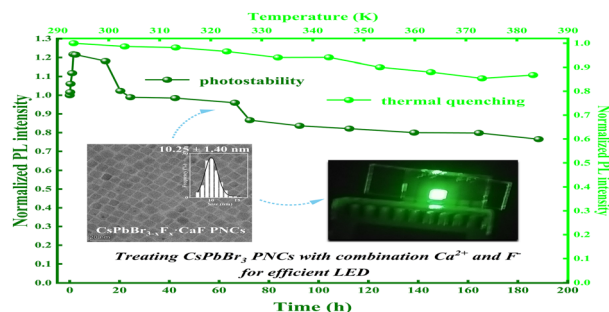


## PAPERS

10965

# Construction of efficient and stable CsPbBr<sub>3</sub> nanocrystals via calcium and fluorine ion combined-treatment for light-emitting diodes

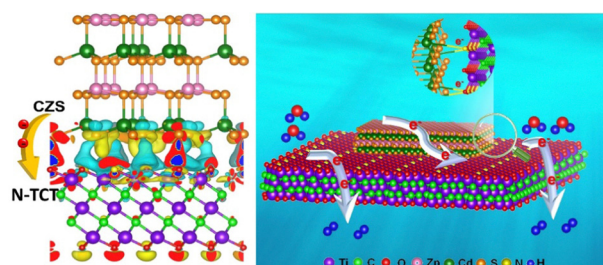
Mingming Liu, Qun Wan, Xinrong Liao, Wenji Zhan, Changwei Yuan, Qinggang Zhang, Mengda He, Cong Zou, Meitian Pan, Long Kong and Liang Li\*



10973

# Anchoring 0D Cd<sub>0.5</sub>Zn<sub>0.5</sub>S nanoparticles on a 3D porous N-doped Ti<sub>3</sub>C<sub>2</sub>T<sub>x</sub> MXene matrix for efficient photocatalytic hydrogen evolution

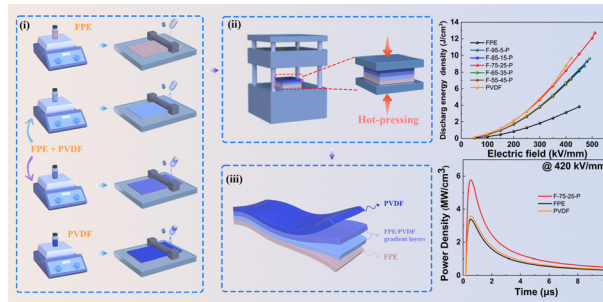
Ming Du, Shilei Ji, Canhui Qian, Lutao Li, Wei Chen, Huajie Huang, Jianping Yang, Jian Zhang,\* Xinbao Zhu and Xing'ao Li\*



10985

# Enhanced energy density and efficiency of all-organic composites by designing a multilayer gradient structure

Yuan Liu, Hang Luo,\* Fan Wang, Zhida Xiao, Chenchen Yang, Xiaona Li, Bo Peng, Yuting Wan, Jian Yin\* and Dou Zhang



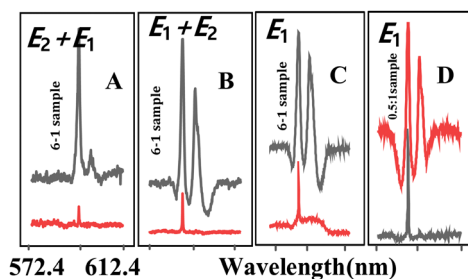
10993

# Reflection-influenced circularly polarised luminescence in dye-embedded polymer-stabilised cholesteric liquid crystal films

Ting Lian, Runwei Yu, Wei Liu,\* Yi Li and Yonggang Yang\*



11001

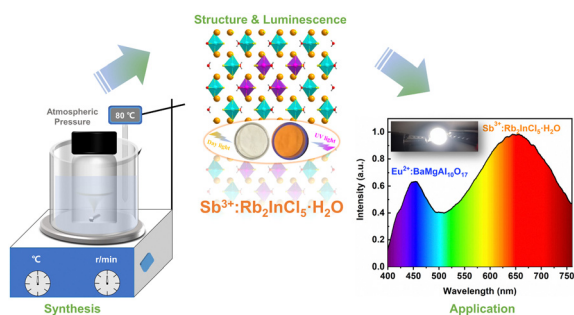


(A-D) show the different line shape evaluations.

### Spectral non-hermitian quantization line shape controlled by phonon dressing in various phases of $\text{Eu}^{3+}:\text{BiPO}_4$

Faisal Nadeem, Muhammad Usman, Anas Mujahid, Muhammad Imran,\* Iqbal Hussain, Usman Javed, Muhammad Waqas Usmani, Muhammad Fahad Ather, Bo Li\* and Yanpeng Zhang\*

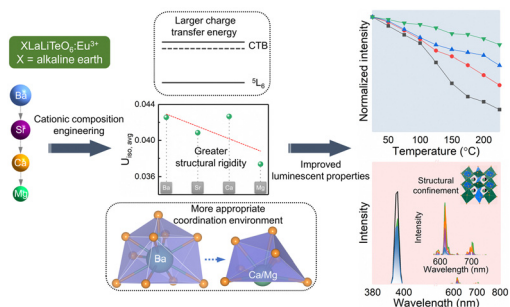
11010



### Highly emissive $\text{Sb}^{3+}$ -doped $\text{Rb}_2\text{InCl}_5 \cdot \text{H}_2\text{O}$ perovskites: cost-effective synthesis, luminescence, and its application

Fan Chen, Xiao-Jun Wang,\* Wenhao Bai, Xuehu Zhang, Wen Hao, Changhua Zhang and Tongtong Xuan\*

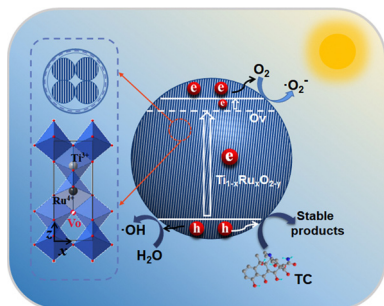
11017



### Cationic composition engineering in double perovskite $\text{XLaLiTeO}_6:\text{Eu}^{3+}$ ( $\text{X} = \text{Ba}, \text{Sr}, \text{Ca}, \text{and Mg}$ ) toward efficient and thermally stable red luminescence for domestic white-LEDs

Jing Zhu, Tongsheng Yang, Hong Li, Yuefei Xiang, Ruitong Song and Hongzhi Zhang\*

11027



### Highly effective ruthenium-doped mesoporous $\text{Ti}_{1-x}\text{Ru}_x\text{O}_{2-y}$ crystals for photocatalytic tetracycline degradation

Yin Jiang, Zhaoyang Wang, Qihang Zhou, Peizhi Yang,\* Peng Qin,\* Fuqiang Huang\* and Wen Yang

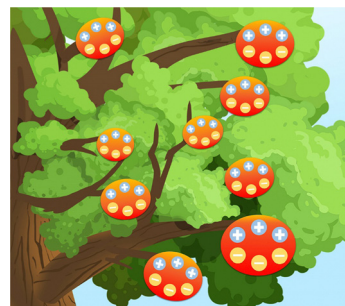


## PAPERS

11034

### Natural bioproducts' hybridization creates transient dynamic electret nanogenerators

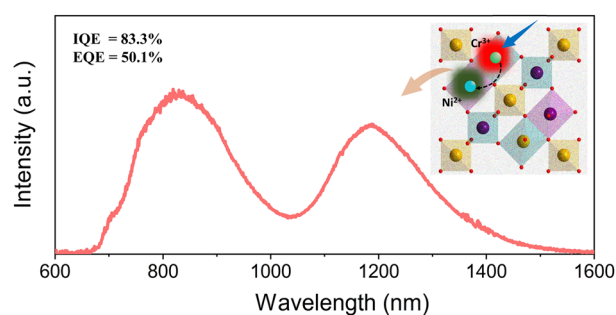
Liang Lu, Chuanfeng Wang, Zhu Liu, Yu Lai, Wei Li, Dingyun Shao, Jun Lu\* and Weiqing Yang\*



11046

### Efficient and ultra-broadband Cr<sup>3+</sup>/Ni<sup>2+</sup> co-doped phosphors for light-emitting diodes with spectral output over NIR-I and NIR-II regions

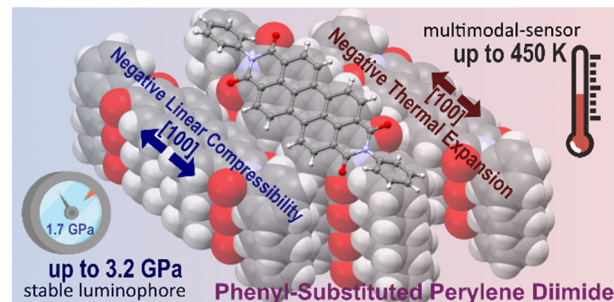
Qianyi Jia, Leqi Yao,\* Shijie Yu, Shuxuan Gong, Jianqing Jiang and Qiyue Shao\*



11055

### Unlocking the sensing potential of phenyl-substituted perylene diimides under extreme conditions

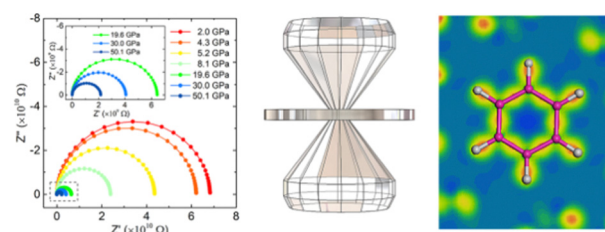
Paulina Ratajczyk, Szymon Sobczak,\* Przemysław Woźny, Angelika Wcisło, Tomasz Poręba and Andrzej Katrusiak\*



11066

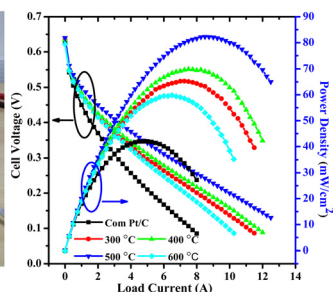
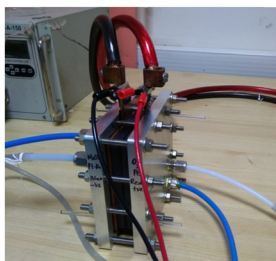
### Pressure effects on the electrical transport properties of benzene

Hao Liu, Jia Wang, Guozhao Zhang, Dawei Jiang, Min Cao, Chunxiao Gao, Xiaojia Chen\* and Yonghao Han\*



## PAPERS

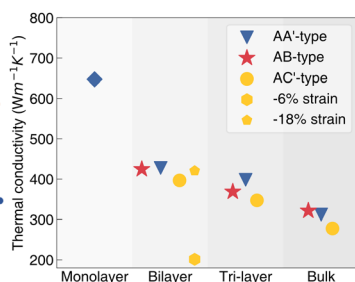
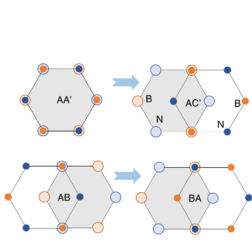
11072



### Solid-state synthesis of Pt/C cathode catalysts for direct methanol fuel cells

Basanta Roul,\* Demudu Babu Gorle, Gokul Raj, Kanhai Kumar, Malti Kumari, K. K. Nanda and S. B. Krupanidhi\*

11082



### Thermal conductivity of sliding bilayer h-BN and its manipulation with strain and layer confinement

Yi-Ming Zhao, Chun Zhang, Sunmi Shin\* and Lei Shen\*

## CORRECTION

11091

### Correction: Solution-processable Li-doped transition metal oxide hole-injection layer for highly efficient quantum-dot light-emitting diodes

Jae Seung Shin, Mingye Kim, Jin Hyun Ma, Jun Hyung Jeong, Hui Ung Hwang, Jeong Won Kim and Seong Jun Kang\*

