

# Materials Advances

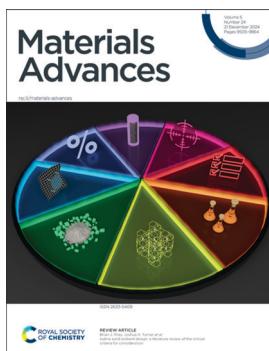
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## IN THIS ISSUE

ISSN 2633-5409 CODEN MAADC9 5(24) 9505–9864 (2024)



### Cover

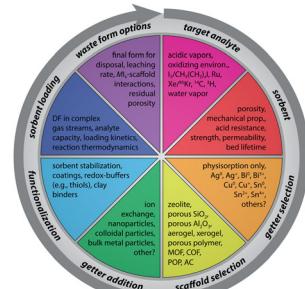
See Brian J. Riley,  
Joshua R. Turner *et al.*,  
pp. 9515–9547.  
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## REVIEWS

9515

### Iodine solid sorbent design: a literature review of the critical criteria for consideration

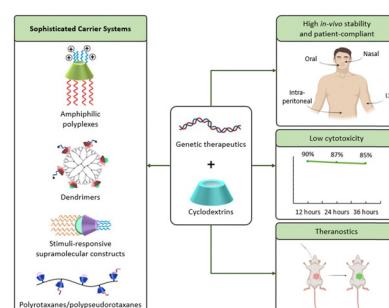
Brian J. Riley,\* Joshua R. Turner,\* Joanna McFarlane,  
Saehwa Chong, Krista Carlson and Josef Matyáš



9548

### Active transfection of genetic materials using cyclodextrin-anchored nanovectors

Amey Revdekar, Bhagyashree V. Salvi and  
Pravin Shende\*





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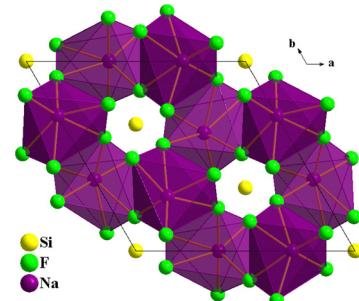
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## COMMUNICATION

9565

**A deep-ultraviolet nonlinear-optical material with a wide bandgap and large static dielectric polarizability coefficient:  $\text{Na}_6\text{Si}_3\text{F}_{18}$** 

Changcheng Tang,\* Xingxing Jiang, Xiuyu Wu, Yuechen Gong, Chao Yang, Ruixin Guo, Panpan Wang, Yongming Huang, Dakun Zhou, Huaiming Chen and Zheshuai Lin

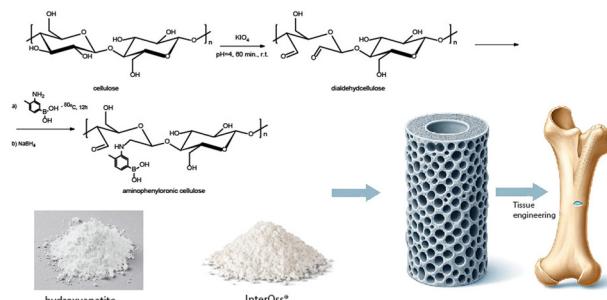


## PAPERS

9573

**Integrating hydroxyapatite and bovine bone mineral into cellulose–collagen matrices for enhanced osteogenesis**

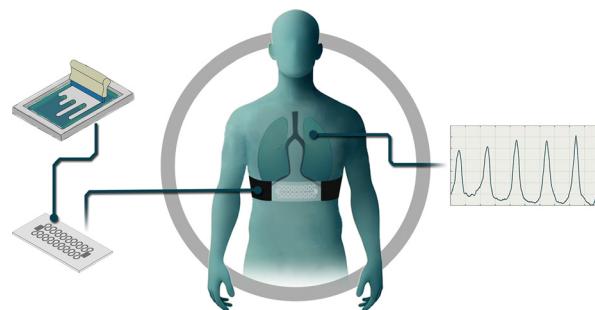
Tudor Pinteala, Paul-Dan Sirbu, Narcis Anghel,\* Irina Rosca, Geanina Voicu, Manuela Calin and Iuliana Spiridon



9586

**Screen-printed wearable sensors for continuous respiratory rate monitoring: fabrication, clinical evaluation, and point-of-care potential**

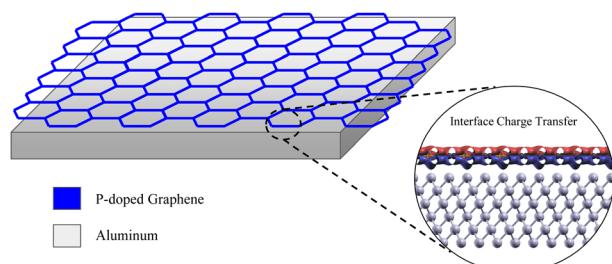
Ala'aldin Al-Halhouli,\* Ahmed Albagdady, Alexander Rabadi, Musab Hamdan, Jumana Abu-Khalaf and Mahmoud Abu-Abeeleh



9596

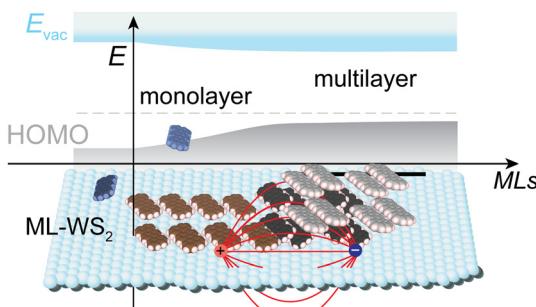
**Reinforcement of aluminum metal matrix composites through graphene and graphene-like monolayers: a first-principles study**

Ellie Zhang\* and Xuan Luo



## PAPERS

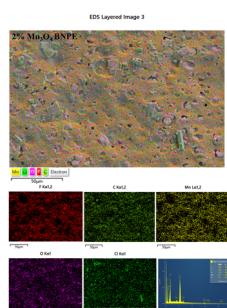
9604



### Terrylene on monolayer WS<sub>2</sub>: coverage-dependent molecular re-orientation and interfacial electronic energy levels

Qiang Wang, Sifan You, Björn Kobil, Patrick Amsalem, Fengshuo Zu, Rongbin Wang, Andreas Opitz, Stefan Hecht, Lifeng Chi and Norbert Koch\*

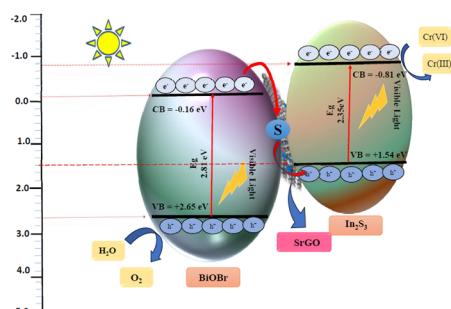
9613



### Enhancing lithium-ion conductivity: impact of hausmannite nanofiller on PVDF–HFP/PEG blend nanocomposite polymer electrolytes

Khizar Hayat Khan, Aneesa Zafar, Haroon Rashid, Iftikhar Ahmad, Gul Shahzada Khan and Hazrat Hussain\*

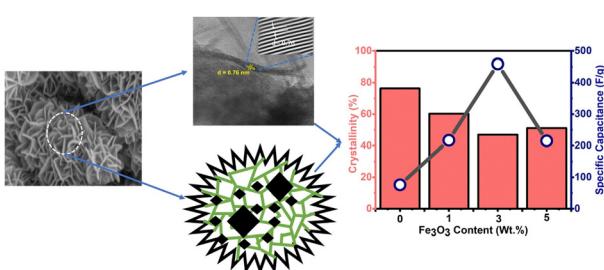
9626



### Treatment of chromium-contaminated water using a highly efficient, novel ternary synergistic S-rGO–BiOBr–In<sub>2</sub>S<sub>3</sub> heterojunction

Satyajib Sahoo, Naresh Kumar Sahoo,\* Prasanta Kumar Sahoo, Soumya Mishra, Arun Kumar, Brundabana Naik and Prangya Ranjan Rout

9641



### Disorder induced augmentation of the specific capacitance of δ-MnO<sub>2</sub> nanoflowers by incorporating Fe<sub>3</sub>O<sub>4</sub> nanodiamonds for supercapacitor electrodes

Md. Raihan Siddiki, Shahid Abubakar Abtahee, Mizanur Rahaman, Muhammad Rakibul Islam and Md. Abdullah Zubair\*

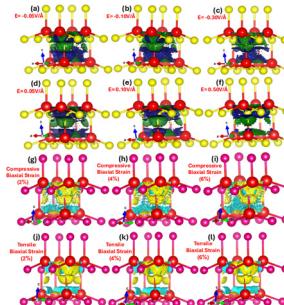


## PAPERS

9656

**Electric field and strain mediated zinc blende ZnSe: exploring its potential as a controlled stimulus responsive optical and optoelectronic material**

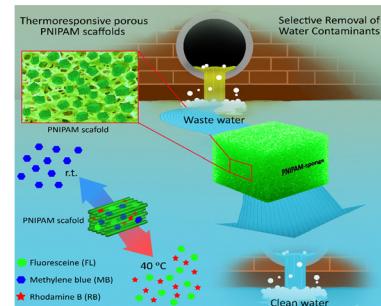
Fakhar E. Alam, Basharat Ali and Suneela Arif\*



9673

**Thermoresponsive scaffolds fabricated using covalent organic frameworks for the selective removal of water contaminants**

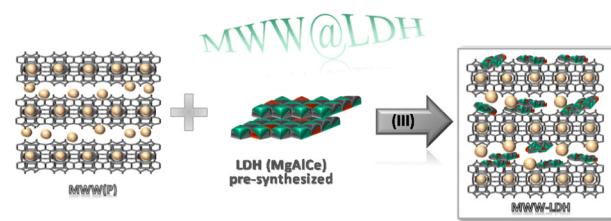
Safoora Gazvineh, Siamak Beyranvand, Sara Saki, Mohammad Nemati, Kai Ludwig, Patrick Amsalem, Thorstenn Schultz, Chong Cheng and Mohsen Adeli\*



9684

**Design and characterization of multi-component lamellar materials based on MWW-type zeolitic layers and metal oxide sub-domains**

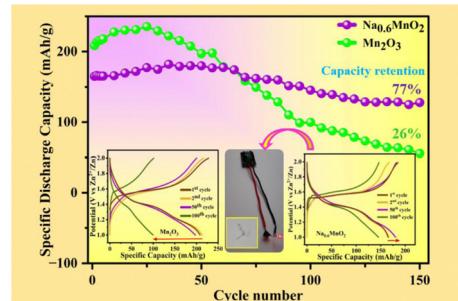
Cristina Esteban, Alexandra Velyt\* and Urbano Díaz\*



9699

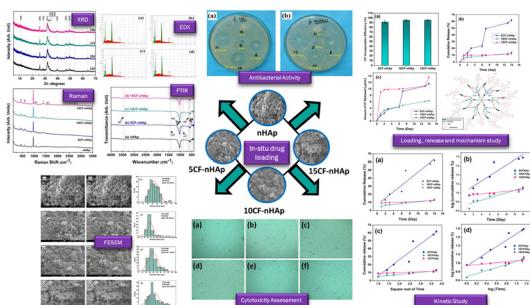
**Enhancing the cycling performance of manganese oxides through pre-sodiation for aqueous Zn-ion batteries**

Anjeline Williams and Prasant Kumar Nayak\*



## PAPERS

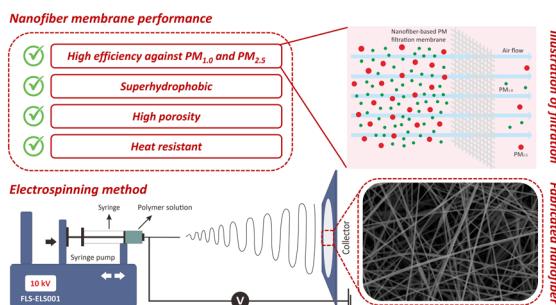
9716



**Poultry waste derived *in situ* drug loaded nano-hydroxyapatite bio-ceramic material for osteomyelitis treatment: *in vitro* drug release and biocompatibility studies**

Mashrafi Bin Mobarak, Fariha Chowdhury, Md. Najem Uddin, Md. Sahadat Hossain, Umme Sarmeen Akhtar, Nazmul Islam Tanvir, Md Aftab Ali Shaikh\* and Samina Ahmed\*

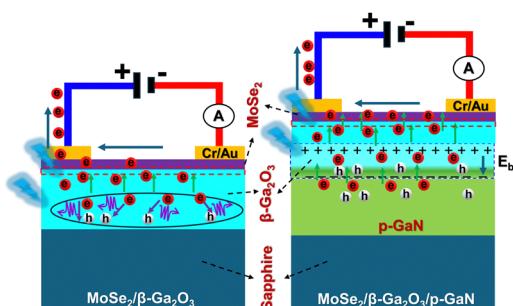
9731



**A superhydrophobic and heat-resistant PAN/PSU/PTFE composite nanofiber membrane for high-efficiency PM<sub>1.0</sub> and PM<sub>2.5</sub> filtration**

Rizky Aflaha, Chlara Naren Maharani, Linda Ardita Putri, Yuliyan Dwi Prabowo, Iman Rahman, Tarmizi Taher, Aditya Rianjanu, Roto Roto, Hutomo Suryo Wasisto and Kuwat Triyana\*

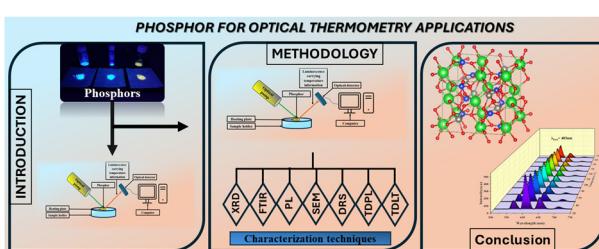
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**Unveiling the synergic potential of dual junction MoSe<sub>2</sub>/n-Ga<sub>2</sub>O<sub>3</sub>/p-GaN heterojunctions for ultra-broadband photodetection**

Vishnu Aggarwal, Manish Kumar, Rahul Kumar, Sudhanshu Gautam, Aditya Yadav, Shikha Shrivastava, Anjana Dogra, Govind Gupta, Sumeet Walia and Sunil Singh Kushvaha\*

9756



**Structural, thermal, and optical spectroscopic studies of Sm<sup>3+</sup>-doped Ba<sub>2</sub>ZnSi<sub>2</sub>O<sub>7</sub> phosphors for optical thermometry applications**

Tejas, A. Princy, S. Masilla Moses Kennedy, Vikash Mishra, M. I. Sayyed, Taha A. Hanafy and Sudha D. Kamath\*

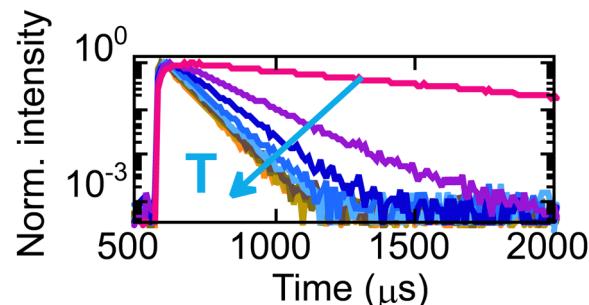


## PAPERS

9774

**Promising single crystal host for bulk scintillators: luminescence and energy migration in  $(\text{Gd},\text{Y})\text{AlO}_3$** 

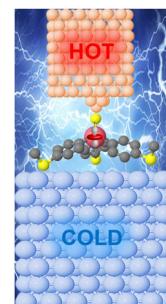
Monika Kotyková,\* Romana Kučerková, Alena Bejtlerová, Vladimír Babin, Vítězslav Jarý, Jan Touš, Jan Polák, Karel Blažek and Martin Nikl



9781

**Thermoelectric signature of d-orbitals in tripod-based molecular junctions**

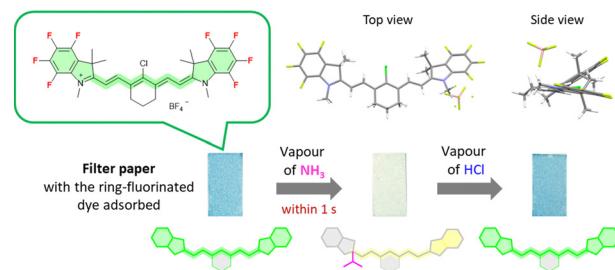
Oday A. Al-Owaedi,\* Hussein Neama Najeeb, Ahmed Kareem Obaid Aldulaimi, Nathera Hussin Alwan, Mohammed Shnain Ali, Majed H. Dwech and Muneer A. AL-Da'amy



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**A ring-fluorinated heptamethine cyanine dye: synthesis, photophysical properties, and vapochromic properties in response to ammonia**

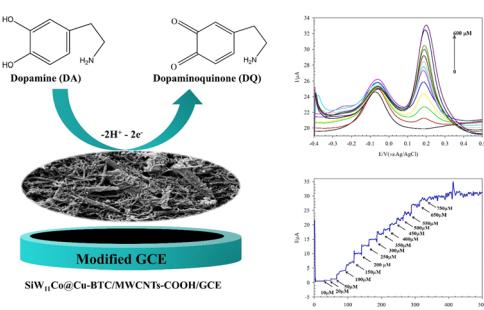
Shouhei Ajioka, Yuto Hagiwara, Yuki Uehashi, Tomohiro Agou, Yasuhiro Kubota, Toshiyasu Inuzuka and Kazumasa Funabiki\*



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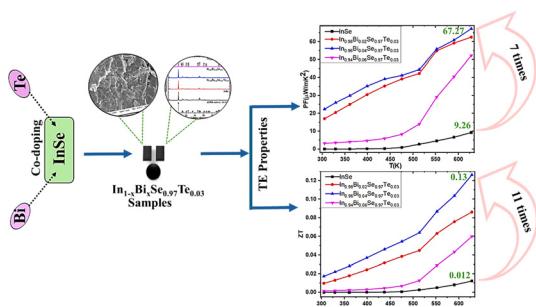
**A novel synthesis of inorganic–organic nanohybrid based on  $\text{SiW}_{11}\text{Co@Cu-BTC/MWCNTs-COOH}$  for electrocatalytic oxidation of dopamine**

Zahra Sadeghi and Somayeh Dianat\*



## PAPERS

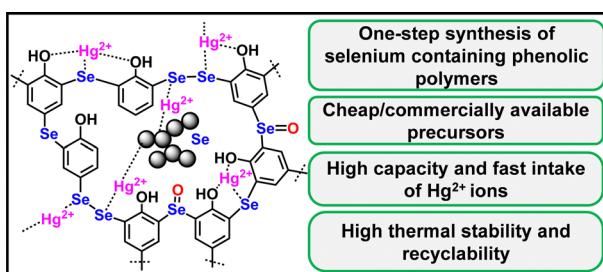
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## Bismuth and tellurium co-doping: a route to improve thermoelectric efficiency in InSe polycrystals

Manasa R. Shankar, A. N. Prabhu\* and Tulika Srivastava

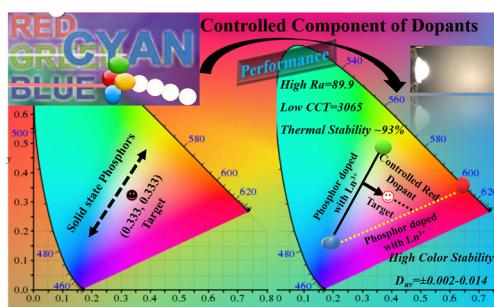
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## Arylselanyl motifs in hierarchically structured mesoporous phenolic polymers: efficient adsorption sites for Hg<sup>2+</sup> ions

Vishnu Selladurai and Selvakumar Karuthapandi\*

9851



## White light emission and superior color stability in a single-component host with exceptional eminent color rendering and theoretical calculations on $D_{uv}$ for color quality

Wasim Ullah Khan, Waheed Ullah Khan, Haris Zaman, Ayaz Mabsud, Dilfaraz Khan,\* Salim Ullah Khan, Shuakat Khan and Yueli Zhang\*

## CORRECTION

9862

## Correction: A perspective on contact-electro-catalysis based on frontier molecular orbitals

Ziming Wang, Xuanli Dong, Fu-Jie Lv and Wei Tang\*

