

# Materials Advances

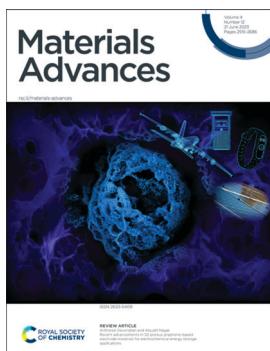
An open access journal publishing across the breadth of materials science

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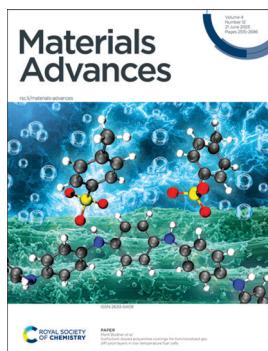
## IN THIS ISSUE

ISSN 2633-5409 CODEN MAADC9 4(12) 2515–2686 (2023)



### Cover

See Arthisree Devendran and Atsushi Nagai, pp. 2524–2543.  
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### Inside cover

See Merit Bodner et al., pp. 2573–2585.  
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## EDITORIAL

2522

### Introduction to "Shaping the future using thin films and nanotechnology"

Aruna Ivaturi\* and Oomman Varghese\*

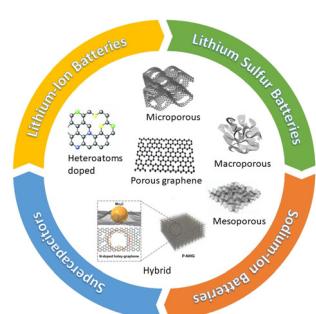


## REVIEWS

2524

### Recent advancements in 3D porous graphene-based electrode materials for electrochemical energy storage applications

Arthisree Devendran and Atsushi Nagai\*



# Materials Advances

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Materials Advances (electronic: ISSN 2633-5409) is published 24 times a year by the Royal Society of Chemistry, Thomas Graham House, Science Park, Milton Road, Cambridge, UK CB4 0WF.

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## REVIEWS

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## Nanotechnology based therapeutic approaches: an advanced strategy to target the biofilm of ESKAPE pathogens

Arpita Mukherjee, Somashree Bose, Anirban Shao and Sujoy K. Das\*



## PAPERS

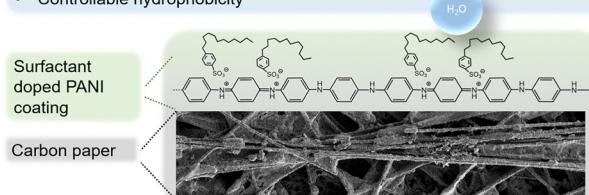
2573

## Surfactant doped polyaniline coatings for functionalized gas diffusion layers in low temperature fuel cells

Florian Tritscher, Adrian Mularczyk, Antoni Forner-Cuenca, Viktor Hacker and Merit Bodner\*

Functional coatings for gas diffusion layers in fuel cells:

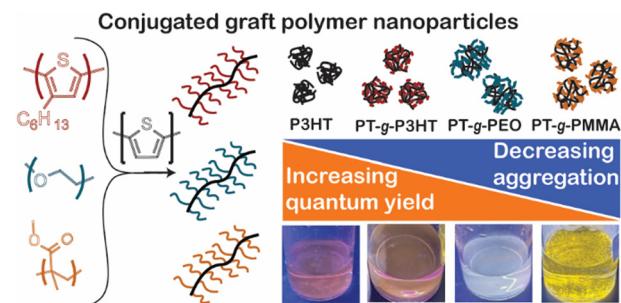
- PTFE-free
- Improved electrical conductivity
- Controllable hydrophobicity



2586

## Enhancing photoluminescence of conjugated nanoparticles through graft polymer architectures

Ashley E. Masucci, Masoud Ghasemi, Christian W. Pester\* and Enrique D. Gomez\*



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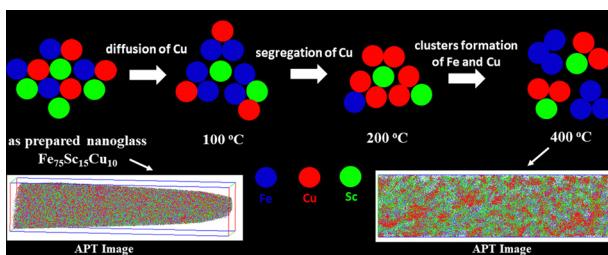
## Ni(II) and Zn(II)-metallogel-based anti-bacterial scaffolds for fabricating light-responsive junction-type semiconducting diodes with non-ohmic conduction mechanism

Gerald Lepcha, Baishakhi Pal, Santanu Majumdar, Kazi Tawsif Ahmed, Indrajit Pal, Swadesh Ranjan Biswas, Partha Pratim Ray\* and Biswajit Dey\*



## PAPERS

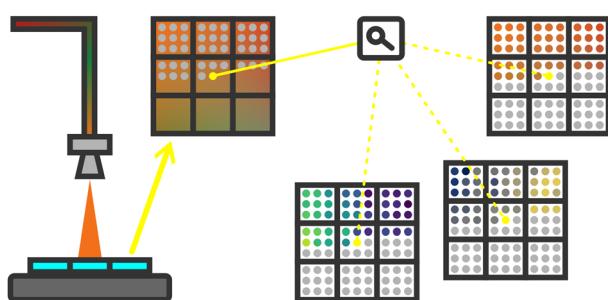
2604



## Nano-alloying and nano-chemistry of the immiscible elements Fe and Cu in a FeSc–Cu nanoglass

Shiv Prakash Singh,\* Mohammed Reda Chellali, Torben Boll, Herbert Gleiter and Horst Hahn

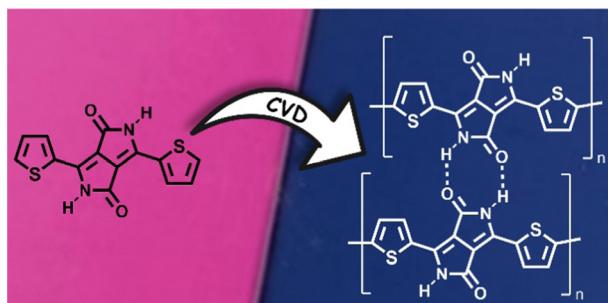
2612



## Accelerated screening of Cu–Ga–Fe oxide semiconductors by combinatorial spray deposition and high-throughput analysis

Maximilian Wolf,\* Georg K. H. Madsen and Theodoros Dimopoulos\*

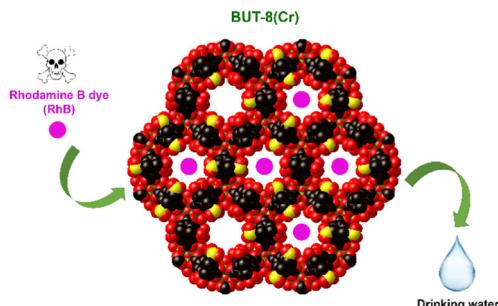
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## Unsubstituted thiophene-diketopyrrolopyrrole conjugated polymer thin films via oxidative chemical vapor deposition – electronic behavior

Marek K. Charyton, Tobias Reiker, Kamil Kotwica, Monika Góra, Helmut Zacharias and Nicolas D. Boscher\*

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## Efficiently improving the adsorption capacity of the Rhodamine B dye in a SO<sub>3</sub>H-functionalized chromium-based metal–organic framework

Khang M. V. Nguyen, Anh V. N. Phan, Nhung T. Dang, Truong Q. Tran, Huy K. Duong, Hung N. Nguyen and My V. Nguyen\*



## PAPERS

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**Vitrimerization of crosslinked elastomers: a mechanochemical approach for recycling thermoset polymers**

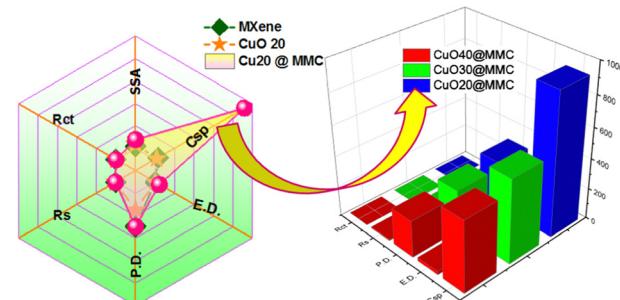
Alireza Bandegi, Thomas G. Gray,\* Sarah Mitchell, Amin Jamei Oskouei, Michelle K. Sing, Jayme Kennedy, Kimberly Miller McLoughlin and Ica Manas-Zloczower\*



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**Facile synthesis of ternary MXene nanocomposites as an electrode for supercapacitive applications**

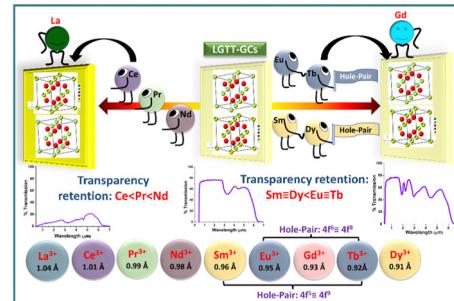
Rutuja A. Chavan, Desta M. Ulioso, Akash S. Rasal, Jia Yaw Chang and Anil Vithal Ghule\*



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**The effect of rare earth ( $RE^{3+}$ ) ionic radii on transparent lanthanide-tellurite glass-ceramics: correlation between 'hole-formalism' and crystallization**

Pritha Patra, K. Jayanthi, Fabian Margit, Shweta R. Keshri, Sandip Bysakh, Kaushik Biswas, Nitya Nand Gosvami, N. M. Anoop Krishnan, Amarnath R. Allu and K. Annapurna\*



## CORRECTION

2683

**Correction: Cellulose-assisted electrodeposition of zinc for morphological control in battery metal recycling**

B. W. Hoogendoorn, M. Parra, A. J. Capezza, Y. Li, K. Forsberg, X. Xiao\* and R. T. Olsson\*

