# **Materials Advances**

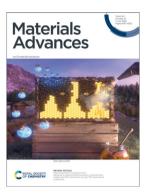
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See Hyojung Kim et al., pp. 4158-4173. Image reproduced by permission of Hyojung Kim from Mater. Adv., 2025. 6. 4158.



### Inside cover

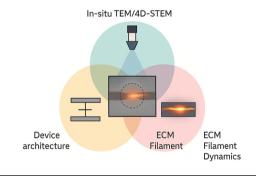
See Koon-Yang Lee et al., pp. 4202-4210. Image reproduced by permission of Koon-Yang Lee and Joanne Li from Mater. Adv.. 2025, 6, 4202.

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Advances in resistive switching memory: comprehensive insights into ECM mechanisms through TEM observations and analysis

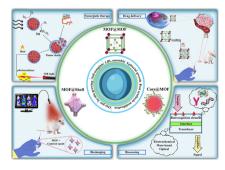
Woonbae Sohn, Hyerim Kim, Jung Hun Lee, Young-Seok Shim, Cheon Woo Moon\* and Hyojung Kim\*



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Simindokht Zarei-Shokat, Sheyda Abedi-Banaei, Amir Kashtiaray, Zahra Yazdi, Haniyehalsadat Amirhosseini and Ali Maleki\*





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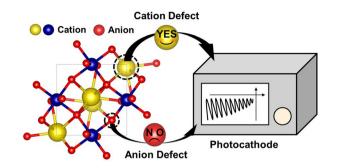


### COMMUNICATION

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Utilization of neural network potential for determining perovskite-type metal oxide photocathodes capable of producing hydrogen

Shuya Masuda, Yosuke Harashima, Tomoaki Takayama,\* Shogo Takasuka and Mikiya Fujii\*

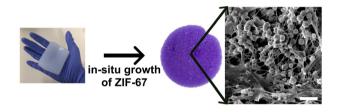


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Zeolitic imidazolate framework decorated bacterial cellulose coating for enhancing particulate filtration and adsorption from liquid and vapour phases of woven fabric

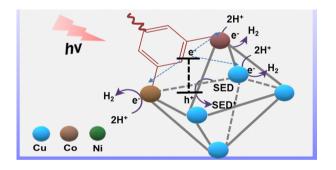
Joanne Li, Armando Garcia, Anett Kondor, Corinne Stone, Martin Smith, Mike Dennis and Koon-Yang Lee\*



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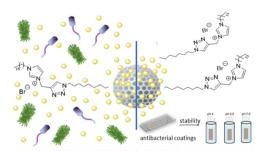
In situ decorated Ni and Co in a CuBTC MOF for synergistic photocatalytic hydrogen generation

Bhavya Jaksani, Janardhan Abburi, Hafijul Islam, Spandana Gonuguntla, Tinku Baidya and Ujjwal Pal\*



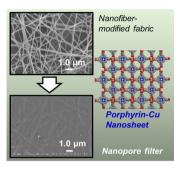
Ionic liquid modified mesoporous silica nanocarriers for efficient drug delivery and hydrophobic surface engineering

Annika Szymura, Shaista Ilyas,\* Florian Grohmann and Sanjay Mathur



Drug Delivery and Hydrophobic Surface Engineering

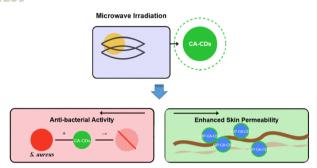
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Yusuke Kuramochi, Yuna Aoki, Kyoko Enomoto, Seiji Nakamura, Hideyuki Tanaka, Keiichiro Ozawa, Miki Hasegawa, Osamu Ohsawa, Kei Watanabe\* and Kazuyuki İshii\*

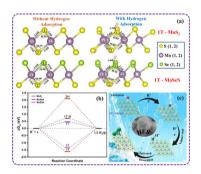
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# Cinnamic acid-derived carbon dots by microwave irradiation synergise the ciprofloxacin effect against Staphylococcus aureus and promote its skin permeability

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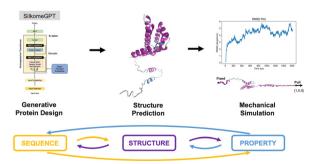
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# Phase selective hydrothermal synthesis of 1T MoS<sub>2</sub> and Janus 1T MoSSe for the hydrogen evolution reaction

Kushal Mazumder, Chob Singh, N. J. Hemavathi, Suman Kalyan Sahoo, Arvind H. Jadhav and Pramoda K. Nayak\*

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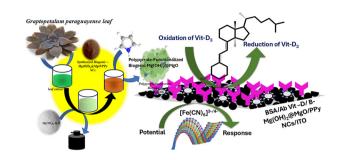
# Generative design and molecular mechanics characterization of silk proteins based on unfolding behavior

Wei Lu and Markus J. Buehler\*

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Fabrication of a polypyrrole-functionalized biogenic Mg(OH)<sub>2</sub>@MgO immunosensor, synthesized using Graptopetalum paraguayense leaf extract, for selective and efficient impedimetric detection of cholecalciferol (Vit-D<sub>3</sub>)

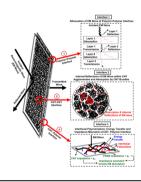
Sarita Shaktawat, Surendra K. Yadav and Jay Singh\*



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Tailoring electromagnetic interference shielding properties in sandwich architectures made with low-concentration multi-walled CNT-reinforced **PDMS** 

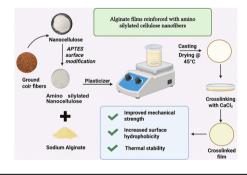
Pavithra Ananthasubramanian, Pritom J. Bora, Chandana Gadadasu, Praveen C. Ramamurthy and Nagarajan Raghavan\*



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Influence of amino silane-modified nanocellulose on the physico-chemical and mechanical properties of alginate films

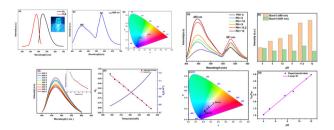
Shenbagaraman Akshaya and A. Joseph Nathanael\*



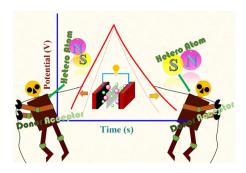
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Highly photoluminescent carbon dots: a multifunctional platform for pH sensing, nano thermometry, and mercury(II) detection

Mouna Fhoula, Ikhlas Kchaou, Christian Hernández-Álvarez, Mohamed Dammak,\* Sami Boufi and Inocencio R. Martín



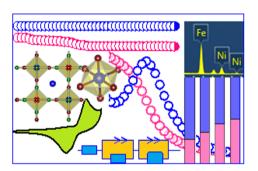
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Enhanced electrochemical performance of S,N-containing carbon materials derived from covalent triazine-based frameworks with a tetrathiafulvalene core

Arijit Maity, Anupam Jana, Sandeep Kumar Dey, Christoph Janiak\* and Asamanjoy Bhunia\*

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Pooia Kumari, Lungelo Lekokotla, Chandan Saha, Sarit K Ghosh, Harishchandra Singh and Kaushik Mallick\*

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V (V)

Vitamin A as a simple, dual-role agent for the band bending-induced passivation of perovskite solar cells

James C. Solano, Itaru Raifuku,\* Hidenori Kawanishi and Yukiharu Uraoka

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Chitosan-acrylic acid biomaterial with an antimicrobial nature supports biomineralization and is suitable for bone tissue regeneration

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Hanieh Ghaedi, Khadijeh Ghanbari\* and Sepideh Bonyadi



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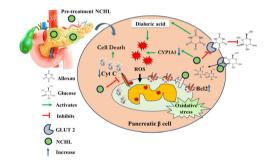
Saurabh Gupta, Gulshan Kumar, Vijay Luxami and Kamaldeep Paul\*



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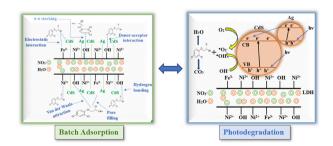
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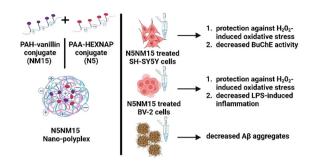
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Utilization of a cadmium sulfide/nickel-ferric layered double hydroxide nanocomposite decorated with silver nanoparticles for efficient adsorption and photocatalytic degradation of 2,4-dichlorophenoxyacetic acid

Walaa A. Shaltout,\* Asaad F. Hassan, Maha S. Elsayed and H. Hafez



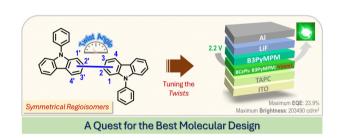
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Development, characterisation and neuroprotective effects of polymer-drug conjugate nano-polyplex: working towards a multi-target treatment for neurodegenerative diseases

Nuruddin Mahadik, Gemma A. Barron, Paul Kong Thoo Lin and Colin J. Thompson\*

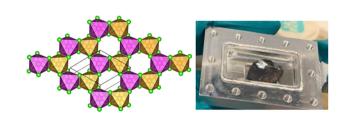
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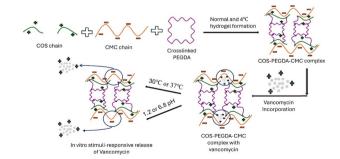
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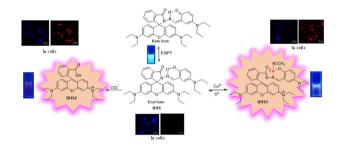
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Vishnu S, Avijit Kumar Das,\* Gouri Karan and Sujata Maiti Choudhury



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Gold recovery from acidic wastewater using ionic viologen organic and metal-organic framework composites

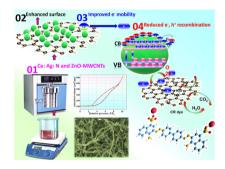
Sk Abdul Wahed, Atikur Hassan\* and Neeladri Das\*



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Manisha Dagar, Suresh Kumar, Amit Jain,\* Anil Vohra, Manohar Singh, Jasvir Dalal,\* Sanjeev Kumar and Sandeep Kaushal



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Ni-NiCr nanoparticles incorporated carbon nanofibers as robust electrocatalysts for efficient glycerol oxidation

Nasser A. M. Barakat.\* Shimaa Hamada. Ibrahim Mustafa and Hesham Alhumade

