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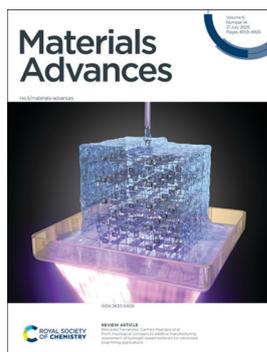
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See Gaétan Laroche, Marie-Christine Durrieu *et al.*, pp. 4646–4659. Image reproduced by permission of Marie-Christine Durrieu from *Mater. Adv.*, 2025, 6, 4646.



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See Mercedes Fernández, Carmen Mijangos *et al.*, pp. 4566–4597. Image reproduced by permission of M. Itxaso Calafel Martínez from *Mater. Adv.*, 2025, 6, 4566.

EDITORIAL

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Introduction to Advances in nanoporous metal films: production methods and applications

Eva Pellicer* and Maria Eugenia Toimil-Molares*

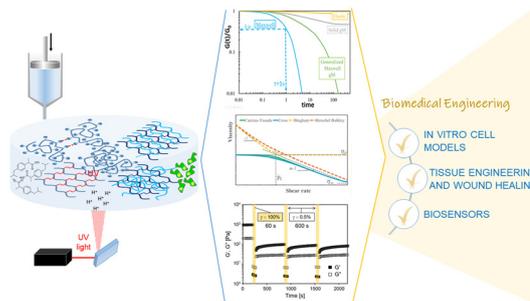


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From rheological concepts to additive manufacturing assessment of hydrogel-based materials for advanced bioprinting applications

M. Itxaso Calafel, Miryam Criado-Gonzalez, Robert Aguirresarobe, Mercedes Fernández* and Carmen Mijangos*



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Fundamental questions
Elemental answers

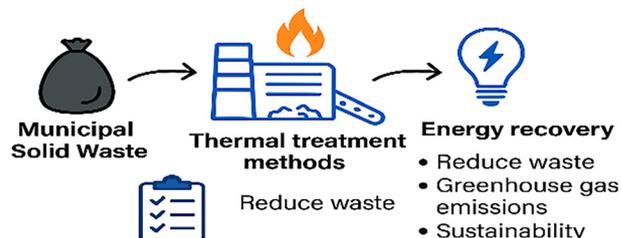
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Waste-to-energy technologies: a sustainable pathway for resource recovery and materials management

Ashish Soni, Sonu Kumar Gupta, Natarajan Rajamohan and Mohammad Yusuf*

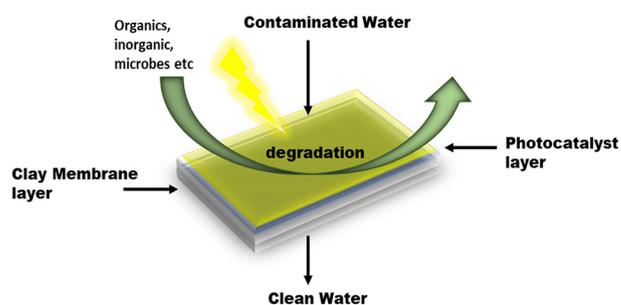
Waste-to-Energy (WtE) Techniques



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Clay-based photocatalytic membranes: low-cost alternative materials for water treatment

Chidinma G. Olorunnisola,* Damilare Olorunnisola, Morenike. O. Adesina, Moses O. Alfred, Abisola O. Egbedina, Oluwayimika O. Oluokun, Martins O. Omorogie, Emmanuel I. Unuabonah and Andreas Taubert*

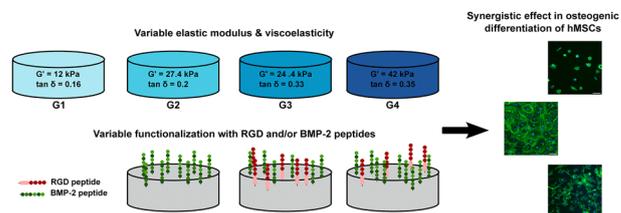


PAPERS

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Unravelling the synergies: effects of hydrogel mechanics and biofunctionalization on mesenchymal stem cell osteogenic differentiation

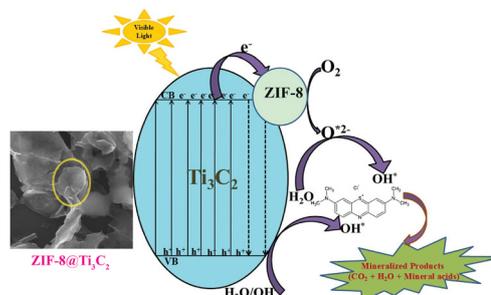
Cristina López-Serrano, Murielle Rémy, Thierry Leste-Lasserre, Gaëtan Laroche* and Marie-Christine Durrieu*



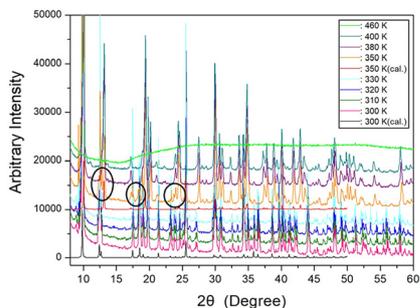
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In situ synthesis of 3D ZIF-8 on 2D MXene nanosheets for efficient photocatalytic degradation of methylene blue (MB)

Francis Ashamary, P. Catherine Neba, S. Harivarsha, Atchudan Raji, Padmanaban Annamalai, Mohamed Gamal Mohamed,* Pramod Kalamate,* Pandi Muthirulan, Shiao-Wei Kuo* and Devaraj Manoj*



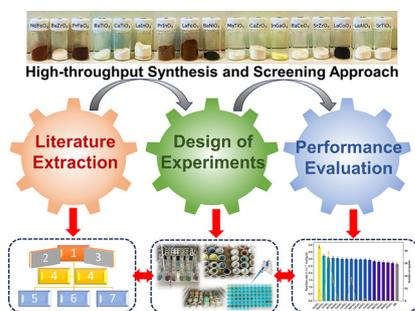
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Phase transition of $(\text{CH}_3)_2\text{CHNH}_3\text{CuCl}_3$: crystal growth, crystal structure, coordination geometry, and molecular motion

Hyunje Park and Ae Ran Lim*

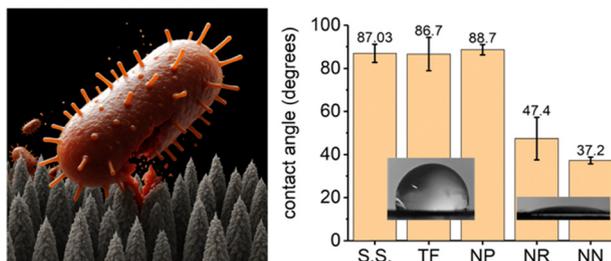
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Accelerated perovskite discovery: screening new catalysts for photocatalytic methylene blue degradation

Poulami Mukherjee,* Yohei Cho, Phulkerd Panitha and Toshiaki Taniike*

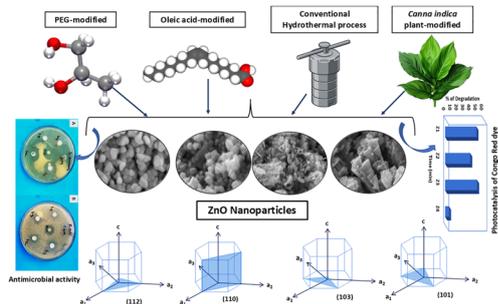
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Void engineering to promote the self-cleaning properties of bactericidal zinc oxide nanopillar array coatings

Amir Hassanpour,* Marie-Christine Groleau, Dalya Messaoudi, Andrea A. Greschner, Katharina Kohlmann, Andreas Ruediger, Eric Déziel, Shuhui Sun and Marc A. Gauthier*

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Crystallographic facet engineering of ZnO nanoparticles for photocatalytic organic pollutant degradation and antibacterial activity

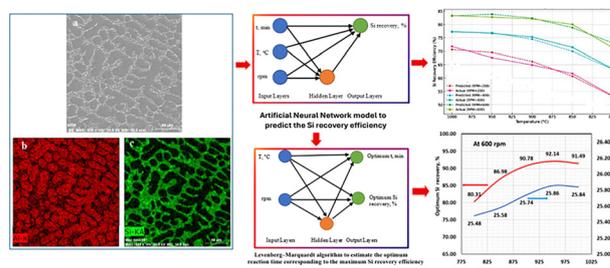
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Optimizing the processing parameters of producing Al–Si alloys using sodium fluosilicate via artificial neural network

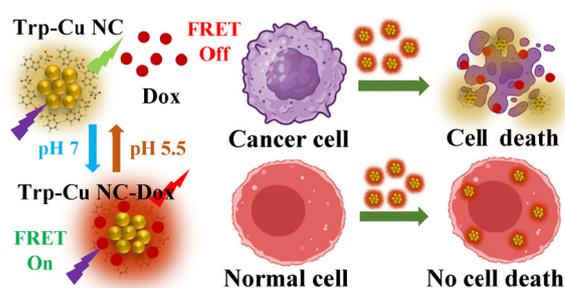
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Mapping the L-tryptophan capped copper nanocluster mediated binding and targeted pH-responsive release of doxorubicin via fluorescence resonance energy transfer (FRET)

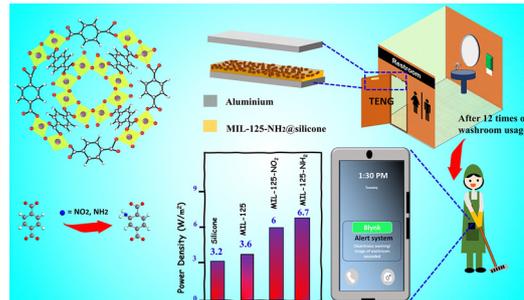
Aarya, Anna Sebastian, Kavya P., Indrajit Bhattacharjee, Abhishek S. Shekhawat, Bibhu Ranjan Sarangi and Supratik Sen Mojumdar*



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Functionalized MIL-125(Ti)-based high-performance triboelectric nanogenerators for hygiene monitoring

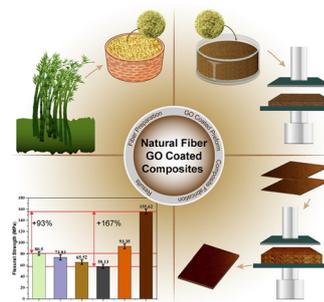
Anjaly Babu, Navaneeth Madathil, Rakesh Kumar Rajaboina, Hitesh Borkar, Kamakshaiah Charyulu Devarayapalli, Yogendra Kumar Mishra, Sugato Hajra, Hoe Joon Kim, Uday Kumar Khanapuram* and Dae Sung Lee*



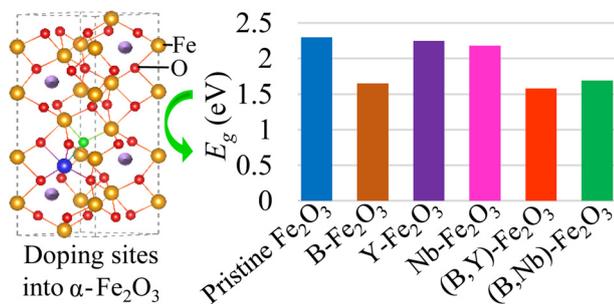
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Enhanced properties of bamboo short fiber reinforced polymer composites with alkali and graphene oxide

Md. Ariful Islam,* Mainul Islam, Md. Shariful Islam and Tarikul Islam*



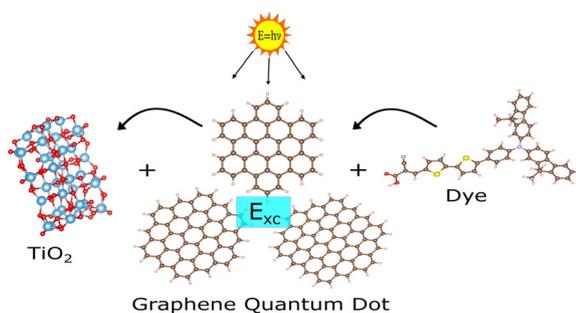
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Improved photocatalytic activity of $\alpha\text{-Fe}_2\text{O}_3$ by introducing B, Y, and Nb dopants for solar-driven water splitting: a first-principles study

Abdul Ahad Mamun and Muhammad Anisuzzaman Talukder*

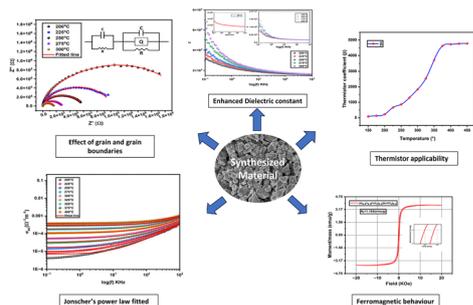
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A density functional theory study of dye-sensitized solar cells with graphene quantum dots: only a matter of size?

D. Gemberi,* Ž. S. Maršić and H. Bahmann*

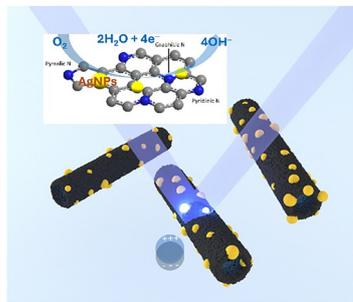
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Enhanced transport, dielectric and magnetic properties of Ni-doped $(\text{YFeO}_3)_{0.5}(\text{BaTiO}_3)_{0.5}$ perovskite for NTC thermistor and multifunctional applications

Harshavardhan Chouhan, Saurabh Prasad, B. N. Parida and R. K. Parida*

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Plasmon-enhanced oxygen reduction reaction using silver nanoparticle-decorated N-doped carbon nanotubes

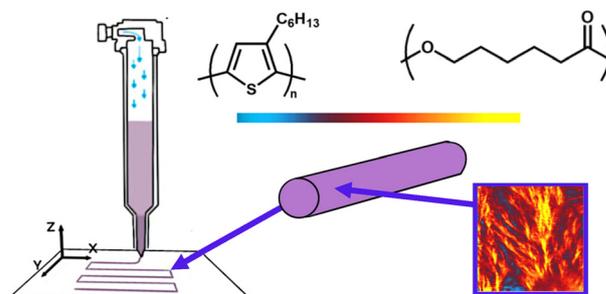
Tereza Jilková, Elena Miliutina, Andrii Trelin, Zdeňka Kolská, Václav Švorčík, Oleksiy Lyutakov and Roman Elashnikov*



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Towards additive manufacturing of semiconducting polymers: hot-melt extrusion of PCL:P3HT blends

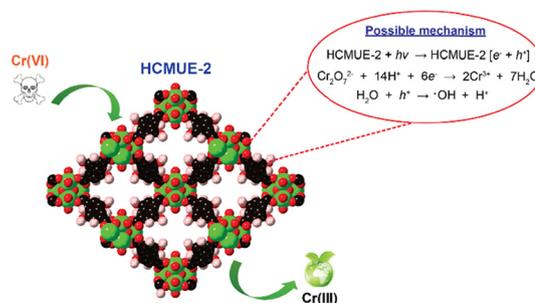
Jiayi Chen, Nahel Blanc and Audrey Laventure*



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An excellent photochemical reduction property of Cr(VI) upon visible light illumination in a hydroxyl-functionalized zirconium-based metal-organic framework

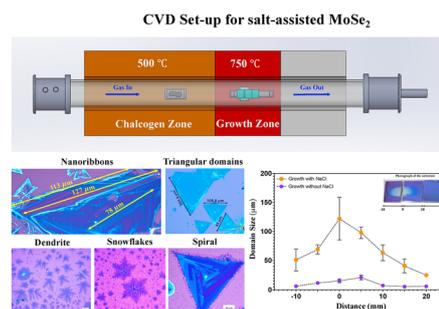
My V. Nguyen,* Vu T. Luu and An T. D. Phan



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Systematic study of CVD-growth parameters in NaCl-assisted growth of MoSe₂ nanostructures: nanoribbons, dendrites and spirals

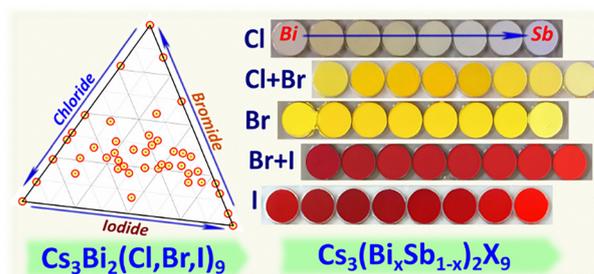
Mahima Tyagi,* Srijata Dey, Pinky Sahoo and Deshdeep Sahdev



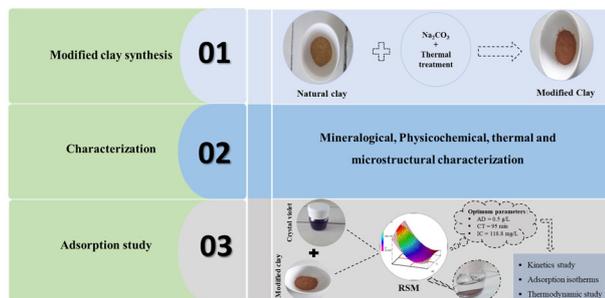
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Exploring compositional versatility of perovskite-like Cs₃(Bi,Sb)₂X₉ (X = Cl, Br, I) compounds by high-throughput experimentation

Oleksandr Stroyuk,* Oleksandra Raievska, Sachin Kinge, Jens Hauch and Christoph J. Brabec



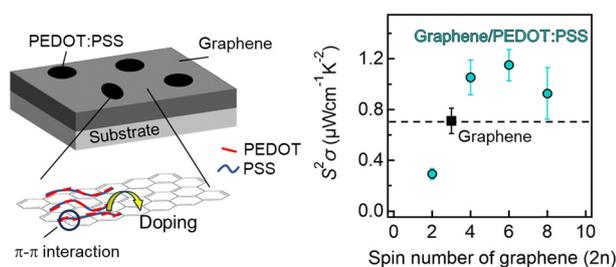
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Improving the adsorption efficiency of a low-cost natural adsorbent for the removal of an organic pollutant: optimization and mechanism study

Yahia Saghir,* Ayoub Chaoui, Salaheddine Farsad, Aboubakr Ben Hamou, Asma Amjlef, Mohamed Benafqir, Nouredine El Alem and Mohamed Ez-zahery

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Molecular interaction-induced thermoelectric performance enhancement of graphene thin films with an agglomerated conductive polymer

Keito Uchida, Shunya Sakane,* Takashi Shimizu, Akito Ayukawa, Haruhiko Udono and Hideki Tanaka*

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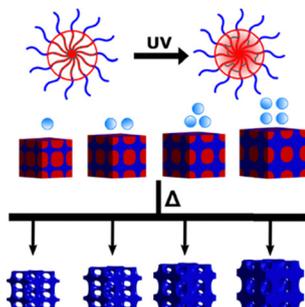
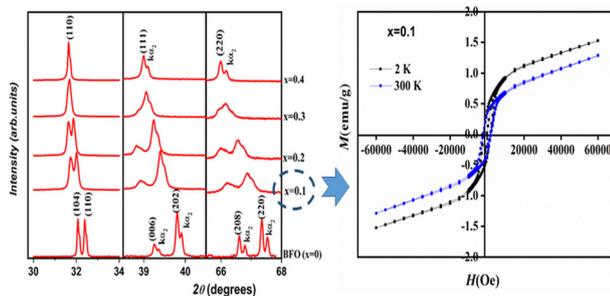


Photo-crosslinked persistent micelle templates with near universal solvent compatibility

Coby S. Collins, Mengxue Zhang, CJ Sturgill, Christian X. Ruff, Bryce Melton and Morgan Stefik*

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Substitution-induced changes in the structure, vibrational, and magnetic properties of BiFeO₃

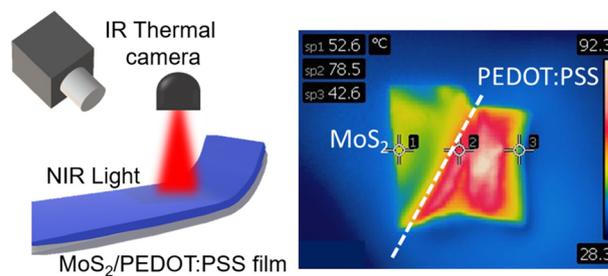
I. Kallel, Z. Abdelkafi,* N. Abdelmoula, H. Khemakhem, N. Randrianantoandro and E. K. Hlil



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An MoS₂/PEDOT:PSS-based flexible NIR-responsive soft actuator

Raksha D. Salian, Avijit Kumar Das and Partha Kumbhakar*



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An efficient strategy for simultaneous gold deposition and obtention of hierarchical Au/TS-1 applied to liquid-phase propylene epoxidation

Ignacio Centeno-Vega,* Lorenzo José González-Rubio, Cristina Megías-Sayago and Svetlana Ivanova

