

# Nanoscale Advances

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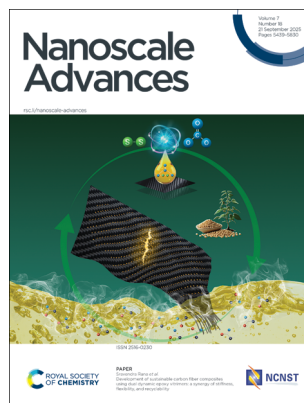
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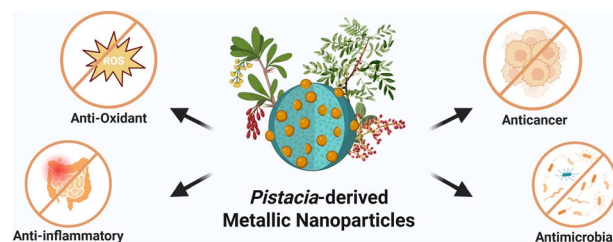
**Inside cover**  
See Sravendra Rana *et al.*, pp. 5507–5518. Image reproduced by permission of Sravendra Rana from *Nanoscale Adv.*, 2025, 7, 5507.

## REVIEWS

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### Green synthesis of metallic nanoparticles using *Pistacia* species: improved stability and biological activities

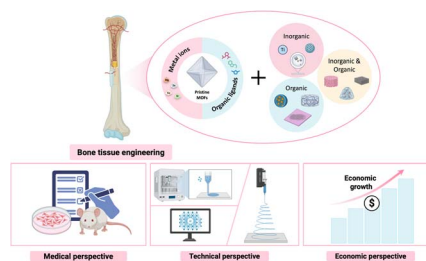
Obaydah Abd Alkader Alabrahim, Ahmed Maher Abdeldayem and Hassan Mohamed El-Said Azzazy\*



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### The synergy of metal–organic frameworks and biomaterials for bone tissue engineering: recent advances, challenges, and future recommendations

Luan Minh Nguyen, Yufeng Wang, Giao Thuy Quynh Vu, Qui Thanh Hoai Ta, Dieu Linh Tran, Ngoc Hoi Nguyen, Thuan Van Tran, Chao Zhang\* and Dai Hai Nguyen\*



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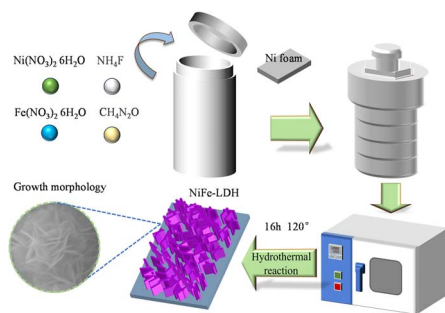
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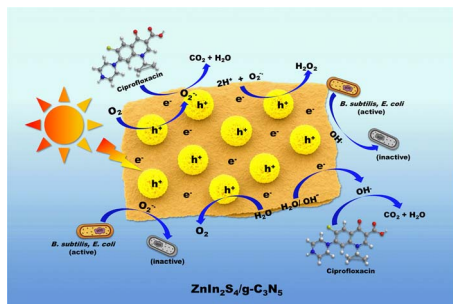
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### NiFe-LDH as a bifunctional electrocatalyst for efficient water and seawater electrolysis: enhanced oxygen evolution and hydrogen evolution reactions

Xin Li, Song-lin Xu, Jia Li, Shuang-shuang Zhang, Bo-yao Zhang, Rong-da Zhao,\* De-peng Zhao\* and Fu-fa Wu\*

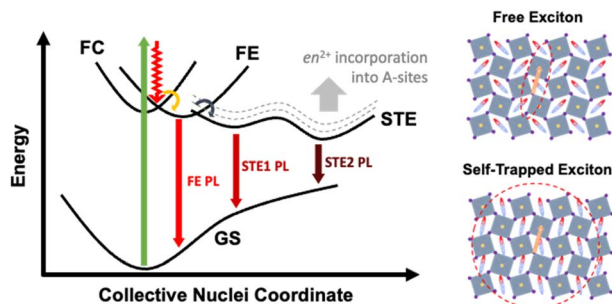
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### A multi-functional novel Z-scheme ZnIn<sub>2</sub>S<sub>4</sub>/g-C<sub>3</sub>N<sub>5</sub> heterojunction catalyst for enhanced visible light active photocatalysis and antimicrobial action

Pratyush Kumar Sahu, Aslisha Champati, Alaka Rath, Sovanika Pradhan, Abanti Pradhan and Brundabana Naik\*

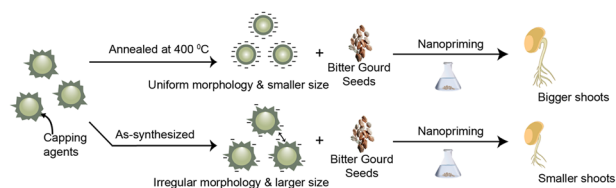
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### Collective motion of methylammonium cations affects phase transitions and self-trapped exciton emission in A-site engineered MAPbI<sub>3</sub> films

Chia-Hsun Yeh, Wen-Yu Cheng, Tai-Che Chou, Yi-Chun Liu, Chia-Wei Chang, Yu-Sheng Chen, Chih-Hsing Wang, Shih-Chang Weng, Ian D. Sharp,\* Pi-Tai Chou and Chang-Ming Jiang\*

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### Annealing-induced optimization of green-synthesized ZnO nanoparticles for improved nanoprimering in sustainable agriculture

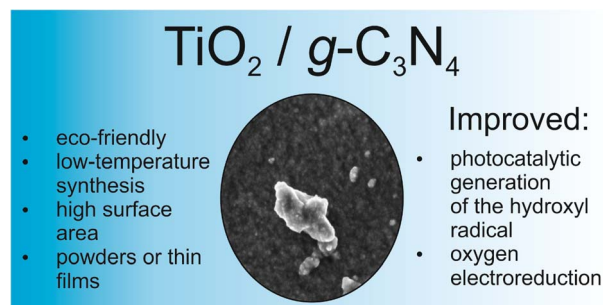
Md. Shadman Mostafa, Samia Yeasmin, Md. Mahmudul Hassan Pranto, Syeda Maliha Reza, Taslim Ur Rashid, Harinarayan Das, Mahmudur Rahman and Ahsan Habib\*



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## Eco-friendly preparation of titanium dioxide/carbon nitride nanocomposites for photoelectrocatalytic applications

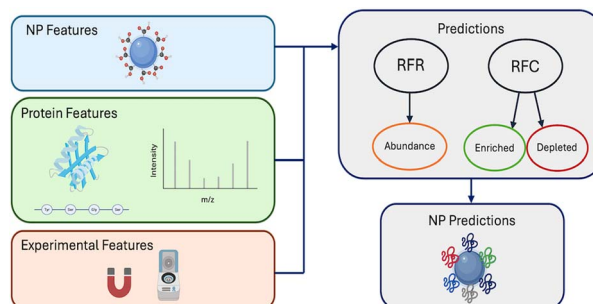
Hanna Maltanova, Nikita Belko, Konstantin Tamarov, Niko M. Kinnunen, Pauliina Nevalainen, Martynas Zalieckas, Renata Karpicz, Igor Koshevoy, Dmitry Semenov, Sari Suvanto, Sergei Malykhin, Vesa-Pekka Lehto and Polina Kuzhir\*



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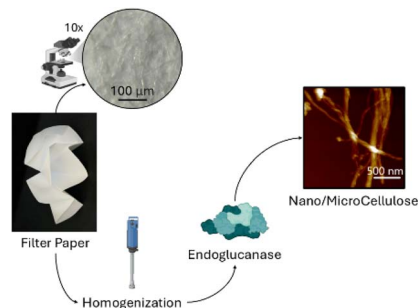
Nicole Vijgen, Karsten M. Poulsen, Gustavo Sosa Macias and Christine K. Payne\*



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## A mechano-enzymatic method to produce nano/microcellulose with ancestral endoglucanase. A comparative study

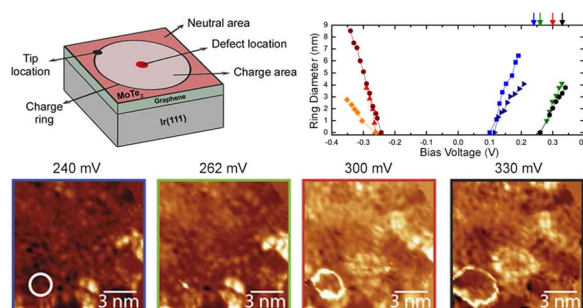
Ane Rivas-Zúñiga, Arantxa Eceiza\* and Borja Fernández-d'Arlas\*



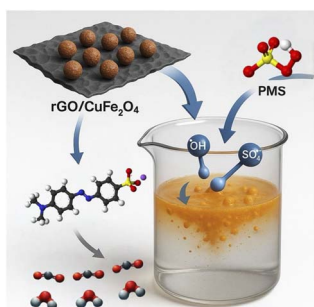
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## Defect identification in monolayer MoTe<sub>2</sub> through tunneling tip-induced charging and theoretical analysis

Pablo Casado, Michele Pisarra, Fabian Calleja, Cristina Díaz, Fernando Martín, Amadeo L. Vázquez de Parga and Manuela Garnica\*



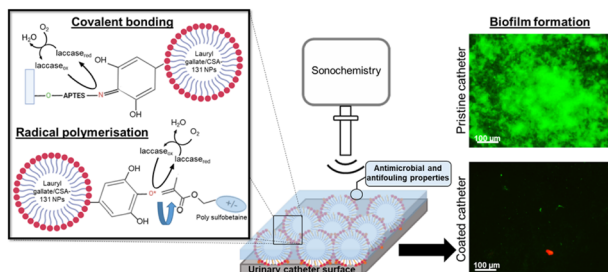
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### Copper ferrite–graphene oxide catalyst for enhanced peroxydisulfate activation and pollutant degradation

Imane Sebah\* and Moustapha Belmouden

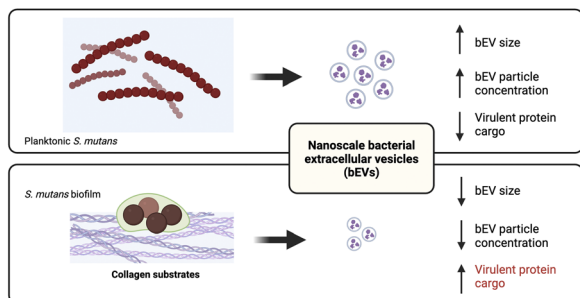
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### Bottom-up sono-enzymatic approach to build antimicrobial and antifouling nano-enabled coatings on urinary catheters

Antonio Puertas-Segura, Leonardo Martín Pérez, Paul Savage, Kristina Ivanova, Gianluca Ciardelli and Tzanko Tzanov\*

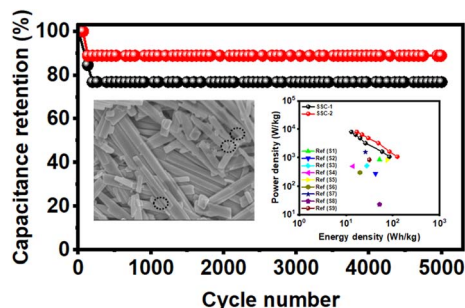
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### Biofilm formation on collagen substrates modulates *Streptococcus mutans* bacterial extracellular nanovesicle production and cargo

Camila Leiva-Sabadini, Pablo Berríos, Paula Saavedra, Javiera Carrasco-Rojas, José Vicente González-Aramundiz, Mario Vera, Estefanía Tarifeño-Saldívar, Christina M. A. P. Schuh\* and Sebastian Aguayo\*

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### Tuning the electrochemical performance of a hierarchical MoO<sub>3</sub>/CdO binary heterostructure for supercapacitor applications

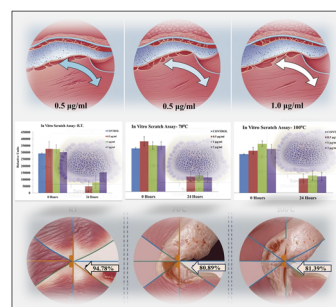
Saifullah, Probal Roy, Md. Abdullah Zubair and Muhammad Rakibul Islam\*



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### Semiconductor NbSe<sub>2</sub> nanoparticles synthesized at various temperatures: a novel promising antifungal candidate with *in vitro* wound healing potential

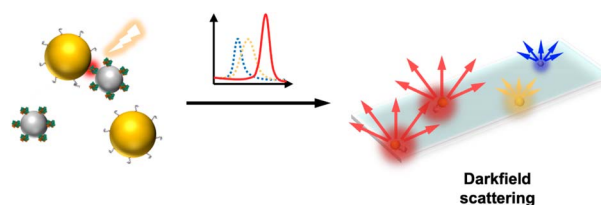
Shivani R. Bharucha, Mehul S. Dave,\* Sunil H. Chaki, Tushar A. Limbani,\* Ashish Bhatt and Apurva C. Kadia



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### A compartment-free digital plasmonic coupling assay via single-particle imaging and counting

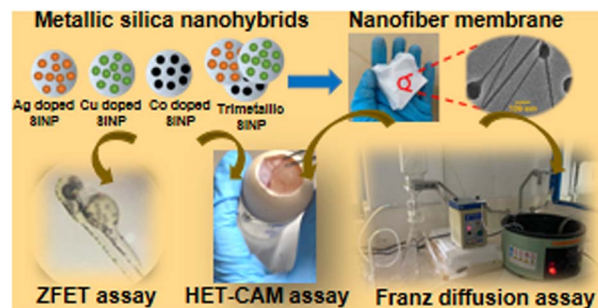
Shengwei Zhang, Sina Jamalzadegan, Yan Wang, Natalie Kelmer and Qingshan Wei\*



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Piumika Yapa, Imalka Munaweera\* and Mayuri Geethanjali Thammitiyagodage\*



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Zahra Sadeghian, Mohammad Bayat\* and Davood Gheidari\*

