

Materials Advances

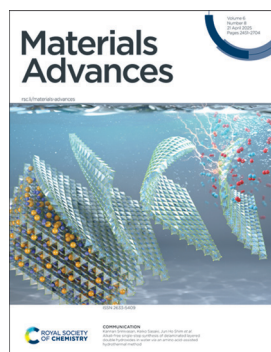
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See Kannan Srinivasan, Keiko Sasaki, Jun Ho Shim *et al.*, pp. 2503–2506. Image reproduced by permission of Jun Ho Shim from *Mater. Adv.*, 2025, 6, 2503.



Inside cover

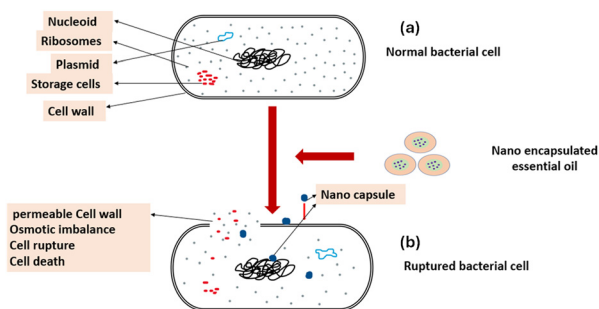
See Chia-Ching Wu *et al.*, pp. 2507–2520. Image reproduced by permission of Chia-Ching Wu from *Mater. Adv.*, 2025, 6, 2507.

REVIEWS

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Recent advances in polymer nanoencapsulation of essential oils for multi-functional textile finishing

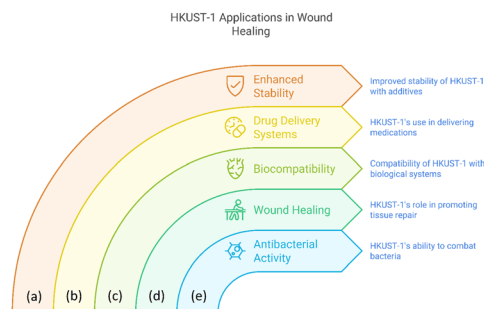
Sumera Naz, Sana Javaid,* Shafi Ur Rehman and Humair Razzaq



2477

Harnessing the power of copper-based metal–organic framework (HKUST-1) nanostructures for advanced wound healing

Dorsa Davoodian, Shirin Khaleghnia Rashkhar and Ali Es-haghi*



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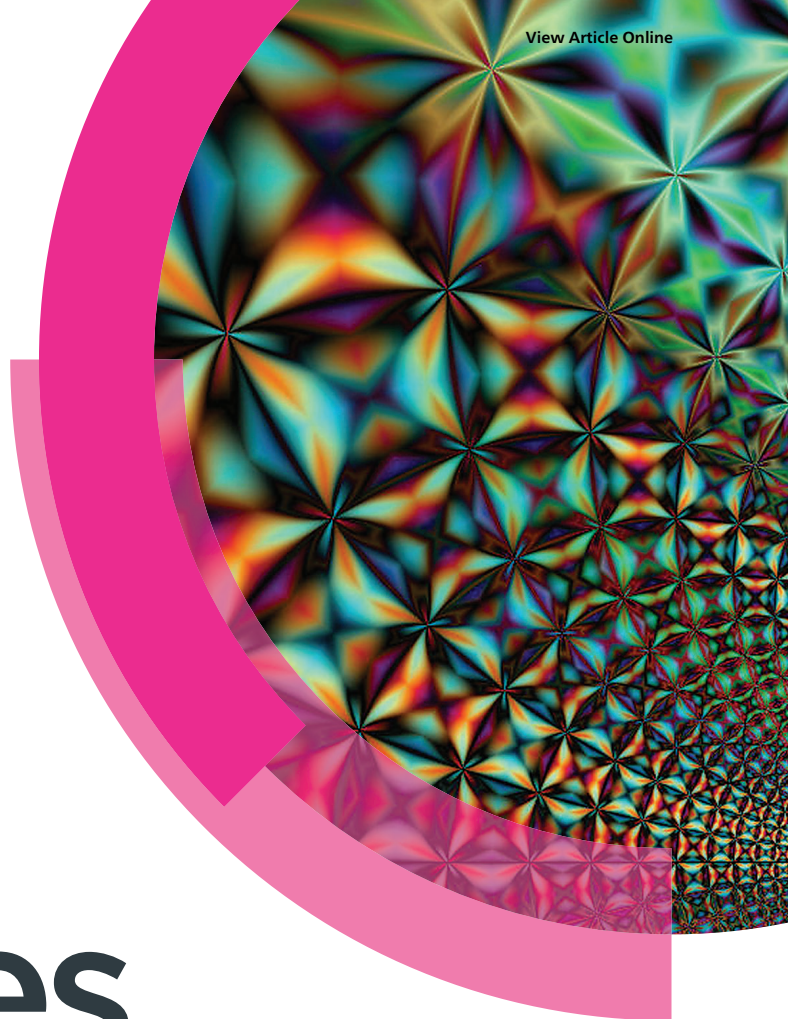


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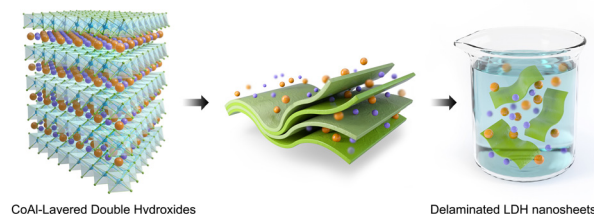


COMMUNICATION

2503

Alkali-free single-step synthesis of delaminated layered double hydroxides in water *via* an amino acid-assisted hydrothermal method

Paulmanickam Koilraj, Rajathsing Kalusulingam, Kannan Srinivasan,* Keiko Sasaki* and Jun Ho Shim*

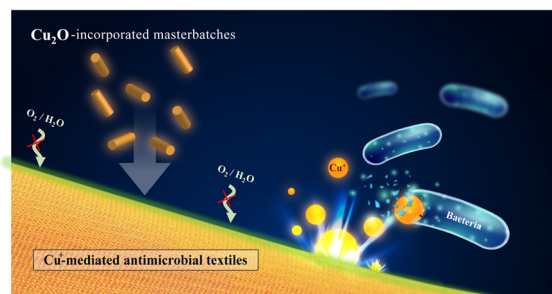


PAPERS

2507

Industrially compatible manufacturing process of wash-durable antimicrobial textiles using cuprous oxide–polymer composites

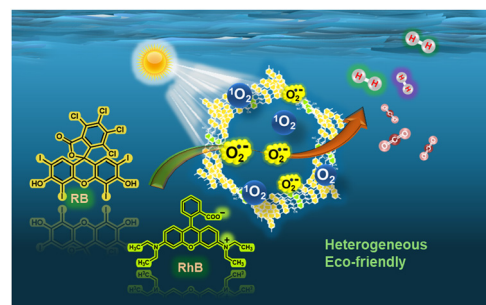
Hung-Tung Chen, Ming-Cai Huang, Yi-Ying Chiang, Yong Chang and Chia-Ching Wu*



2521

A carbazole-based fully conjugated sp²c D–A covalent organic polymer for visible light mediated photocatalytic degradation of rhodamine B and Rose Bengal

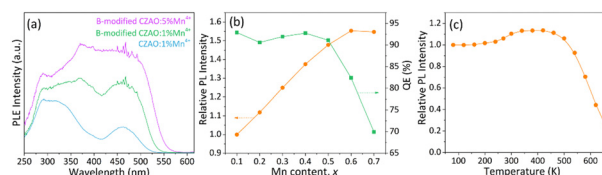
Kamal Verma and K. R. Justin Thomas*

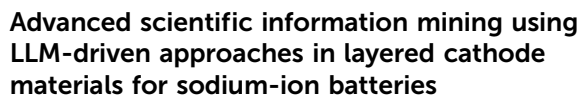


2530

High-concentration Mn⁴⁺ doping in boron-modified Ca₁₄Zn₆Al₁₀O₃₅ – based phosphors: decoding superior luminescence performances

Jiquan Huang,* Ting Lv, Yuqing Lin, Zhonghua Deng, Zhuguang Liu and Wang Guo*





Youwan Na, Jeffrey J. Kim, Chanhyoung Park,
Jaewon Hwang, Changgi Kim, Hokyung Lee and
Jehoon Lee*

The figure illustrates the scanning Kelvin probe (SKP) setup and the resulting surface potential maps. The schematic shows a vibrating gold tip in contact with an ITO-coated substrate. The substrate is divided into two regions: one with a metal (M) and another with a metal hydride (MH₂/Zn). The SKP setup is used to measure the surface potential (ΔCPD) of the metal and metal hydride regions. The resulting surface potential maps show the distribution of ΔCPD across the surface, with a color scale ranging from -1800 mV/KPa to 300 mV/KPa. The maps are labeled H₂P₂P and ZnP₂P, indicating the presence of metal hydride and metal regions, respectively.

Orthogonal effect of pyrene–porphyrin conjugates on the detection of volatile organic compounds under UV and visible light illumination through surface photovoltage

Prasanth Palanisamy, Mageshwari Anandan,
Sheethal Sasi, Arbacheena Bora,
Sarath Kumar Chedharla Balaji, Rence P. Reji,
Yoshiyuki Kawazoe, Kommineni Kalyani,
Surya Velappa Jayaraman,* Yuvaraj Sivalingam and
Venkatramaiah Nutralapati*

a Stamping system

Stamp

Bead Carboxyl label
200nm

Stamp

Cells

b

i Endocytosis

ii Stamp

Enhanced delivery of polymer beads into cells through arrayed metal nanotubes by the Soret effect

Kazuhiro Oyama, Bingfu Liu, Gábor Méhes and
Takeo Miyake*

The diagram illustrates the crystal structure of TbTaO₄ and its magnetic transition. The structure is a honeycomb lattice of Tb atoms (gray spheres) with magnetic moments (blue and orange arrows). In the AFM state, moments are antiparallel. In the FM state, moments are parallel. A coordinate system (a, b) is shown at the bottom right.

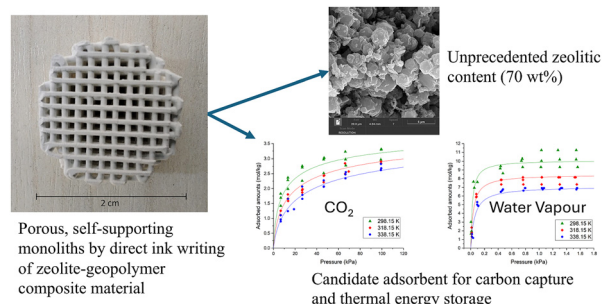
Magnetoelastic coupling in the stretched diamond lattice of TbTaO₄

Xiaotian Zhang, Nicola D. Kelly, Denis Sheptyakov,
Cheng Liu, Shiyu Deng, Siddharth S. Saxena* and
Siân E. Dutton*

2579

Equilibrium adsorption behaviour of a 3D-printed zeolite–geopolymer composite with high faujasitic content

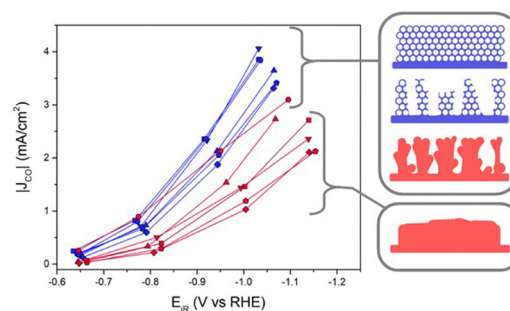
Carlo Gravino, Nicola Gargiulo,* Antonio Peluso, Paolo Aprea, Marco D'Agostini, Giorgia Franchin, Paolo Colombo and Domenico Caputo



2588

Decoupling multiscale morphological effects in templated porous Ag electrodes for electrochemical CO₂ reduction

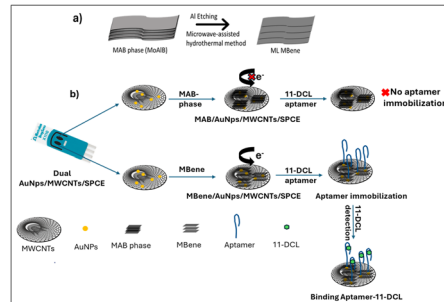
Maaik E. T. Vink-van Ittersum, Karen van den Akker, Peter Ngene and Petra E. de Jongh*



2600

Electrochemical aptasensing platform based on nanolaminated MAB/MBene phases for the efficient detection of 11-deoxycortisol

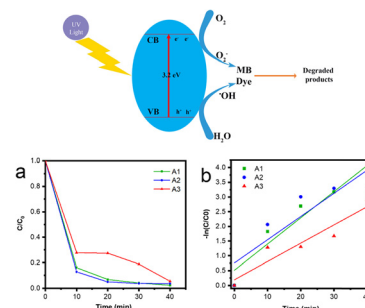
Amina Rhouati, Rawan Ramadan Mohamed, Madhurya Chandel, Karamullah Eisawi, Michael Naguib, Agnieszka Jastrzębska and Mohammed Zourob*



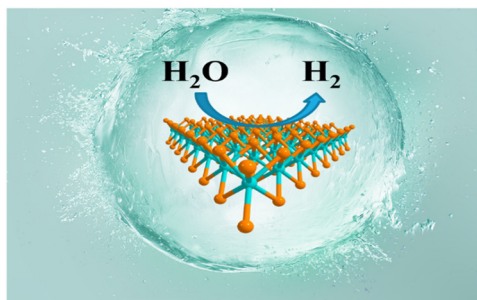
2611

Enhanced photocatalytic efficiency of eco-friendly synthesized ZnO for rapid full degradation of methylene blue dye

Mohammad Tashakkori Masuleh, Masood Hasheminasari and Rouholah Ashiri*



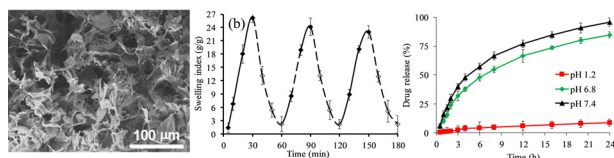
2622



2D monolayer molybdenum(IV) telluride TMD: an efficient electrocatalyst for the hydrogen evolution reaction

Vikash Kumar and Srimanta Pakhira*

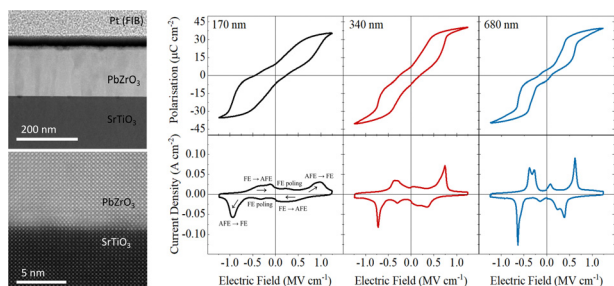
2636



A chia (*Salvia hispanica* L.) seed mucilage-based glucoxytan-grafted-acrylic acid hydrogel: a smart material for pH-responsive drug delivery systems

Maria Khatoon, Arshad Ali, Muhammad Ajaz Hussain,* Muhammad Tahir Haseeb, Gulzar Muhammad, Muhammad Sher, Syed Zajif Hussain, Irshad Hussain and Munawar Iqbal

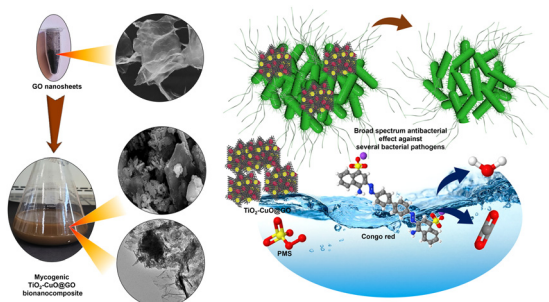
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Epitaxial PbZrO₃ films from chemical solutions

Alfredo Blázquez Martínez,* Andreas Ost, Goran Dražić, Maja Koblar, Andreja Benčan, Torsten Granzow, Yves Fleming, Alexander Ost, Emmanuel Defay, Mael Guennou and Sebastjan Glinšek*

2654



Synthesis of TiO₂-CuO@graphene oxide hybrid bionanocomposite with enhanced antibacterial and organic dye degradation activities

Basma A. Omran,* M. O. Abdel-Salam, Hebatullah H. Farghal, Mayyada M. H. El-Sayed* and Kwang-Hyun Baek*

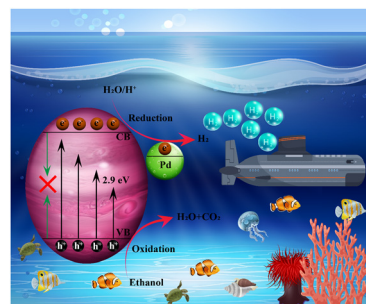


PAPERS

2677

Rectification of charges on r-TiO₂ via Pd-cocatalysts and Schottky junctions to produce H₂ for green energy systems

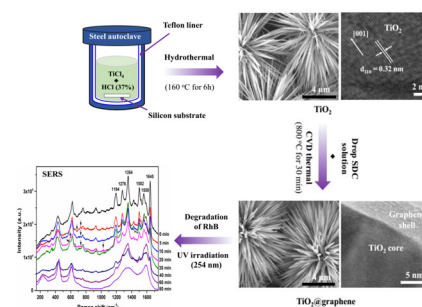
Ejaz Hussain,* Muhammad Jalil, Mehreen Qurban, Muhammad Zeeshan Abid, Muhammad Asif Khan, Minhas Nazir and Khezina Rafiq*



2691

A new and facile preparation of 3D urchin-like TiO₂@graphene core@shell SERS substrates for photocatalytic degradation of RhB

Nguyen Thi Huyen, Tran Ai Suong Suong, Cao Thi Thanh, Pham Van Trinh, Nguyen Van Tu, Bui Hung Thang, Tran Van Hau, Pham Thanh Binh, Vu Duc Chinh, Pham Van Hai, Vu Xuan Hoa, Tran Van Tan, Phan Ngoc Minh, Hiroya Abe and Nguyen Van Chuc*



CORRECTION

2701

Correction: High-performance BiVO₄ photoanodes: elucidating the combined effects of Mo-doping and modification with cobalt polyoxometalate

Fan Feng, Dariusz Mitoraj, Ruihao Gong, Dandan Gao, Mohamed M. Elnagar, Rongji Liu, Radim Beranek* and Carsten Streb*

