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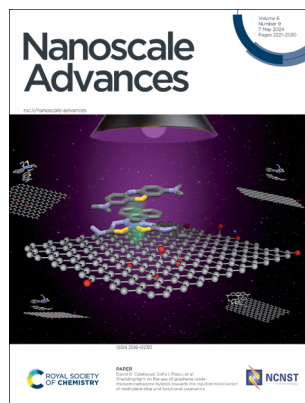
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See Simon R. Hall *et al.*, pp. 2231–2233. Image reproduced by permission of Jan Maurycy Uszko from *Nanoscale Adv.*, 2024, 6, 2231.



Inside cover

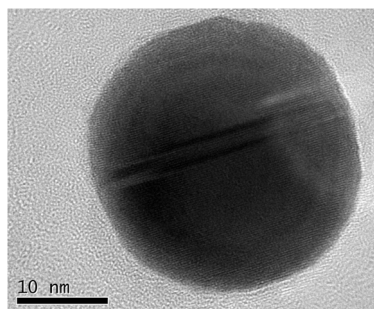
See David G. Calatayud, Sofia I. Pascu *et al.*, pp. 2287–2305. Image reproduced by permission of David G. Calatayud and Ana Castellanos-Aliaga from *Nanoscale Adv.*, 2024, 6, 2287. Ana Castellanos-Aliaga from Instituto de Ceramica y Vidrio - CSIC is acknowledged as coauthor of the cover image.

COMMUNICATION

2231

Detonation of fulminating gold produces heterogeneous gold nanoparticles

Jan Maurycy Uszko, Stephen J. Eichhorn, Avinash J. Patil and Simon R. Hall*

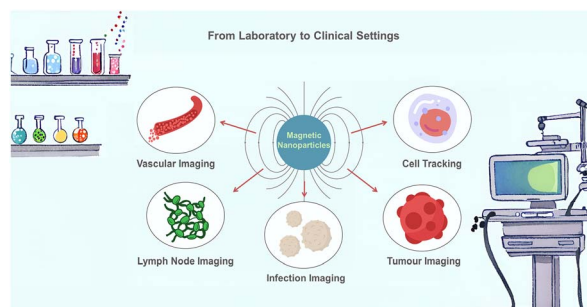


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Advancing MRI with magnetic nanoparticles: a comprehensive review of translational research and clinical trials

Radu Lapusan, Raluca Borlan and Monica Focsan*



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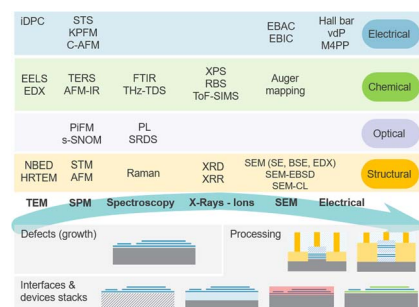
Fundamental questions
Elemental answers

REVIEWS

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Metrology for 2D materials: a perspective review from the international roadmap for devices and systems

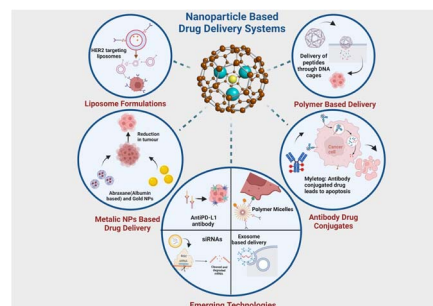
Umberto Celano,* Daniel Schmidt, Carlos Beitia, George Orji, Albert V. Davydov and Yaw Obeng



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Cutting-edge approaches for targeted drug delivery in breast cancer: beyond conventional therapies

Ramesh Chaudhari, Vishva Patel and Ashutosh Kumar*

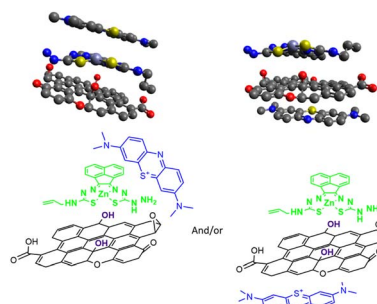


PAPERS

2287

Shedding light on the use of graphene oxide-thiosemicarbazone hybrids towards the rapid immobilisation of methylene blue and functional coumarins

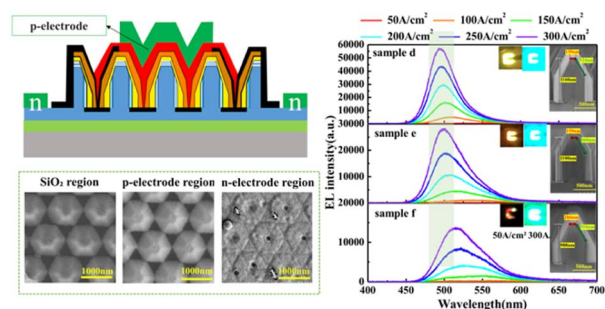
Danielle Bradley, Sophia Sarpaki, Vincenzo Mirabello, Simone Giuseppe Giuffrida, Gabriele I. Kociok-Köhn, David G. Calatayud* and Sofia I. Pascu*



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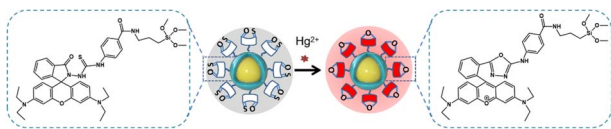
Investigation of emission plane control in GaInN/GaN multiple-quantum shells for efficient nanowire-based LEDs

Soma Inaba, Weifang Lu,* Ayaka Shima, Shiori Ii, Mizuki Takahashi, Yuki Yamanaka, Yuta Hattori, Kosei Kubota, Kai Huang, Motoaki Iwaya, Tetsuya Takeuchi and Satoshi Kamiyama



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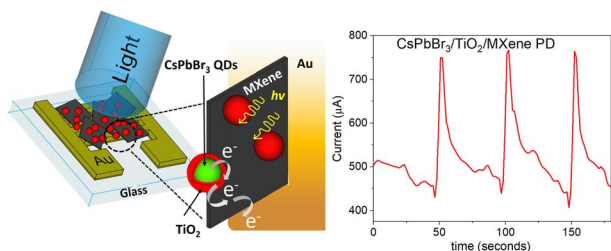
2319



"Turn-on" and pinhole-free ultrathin core-shell Au@SiO₂ nanoparticle-based metal-enhanced fluorescent (MEF) chemodosimeter for Hg²⁺

Ying Cui, Shanji Fan, Yunran Zhai, Yingjie Liu, Junhua Li, Jiawen Hu* and Lijia Wang*

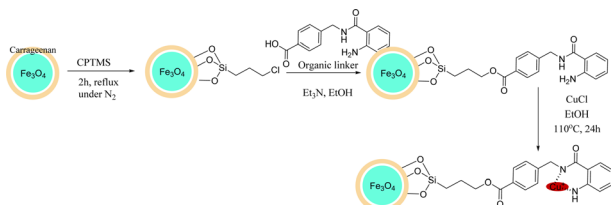
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Stability and photocurrent enhancement of photodetectors by using core/shell structured CsPbBr₃/TiO₂ quantum dots and 2D materials

Chathurika Maduwanthi, Chao-An Jong, Waleed S. Mohammed and Shu-Han Hsu*

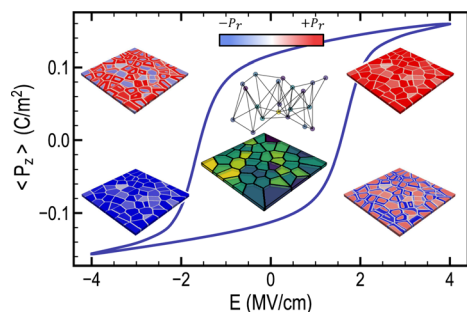
2337



Copper supported modified magnetic carrageenan as a bio-based catalyst for the synthesis of novel scaffolds bearing the 1,2,3-triazole unit through the click reaction

Nima Khaleghi, Maryam Esmkhani, Milad Noori, Navid Dastyafteh, Minoo Khalili Ghomi, Mohammad Mahdavi, Mohammad Hosein Sayahi* and Shahrzad Javanshir*

2350



Ultrafast and accurate prediction of polycrystalline hafnium oxide phase-field ferroelectric hysteresis using graph neural networks

Alhada-Lahbabi Kevin,* Deleruyelle Damien and Gautier Brice



Yingjie Liu, Zhaohui Wu, Sha Bai, Tianyang Shen, Qian Li,
Guihao Liu, Xiaoliang Sun, Yihang Hu, Ziheng Song,
Jinfeng Chu* and Yu-Fei Song*

HER Activity

- H cell : $\text{FE}_{\text{CO}} = 92.06\%$
- Flow cell : $\text{FE}_{\text{CO}} = 96.92\%$
- $j > 100 \text{ mA cm}^{-2}$
- Stability > 24 h

Catalyst	FE_{CO} (%)
Ni	81.26%
NiMn	82.37%
NiFe	86.86%
NiCo	85.18%
NiCu	90.42%
NiZn	-

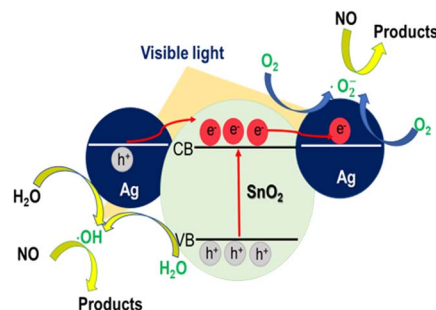
NIM NPs : suppressed HER

**Ni-Ni_x: stronger *COOH binding
enhanced electron transfer**

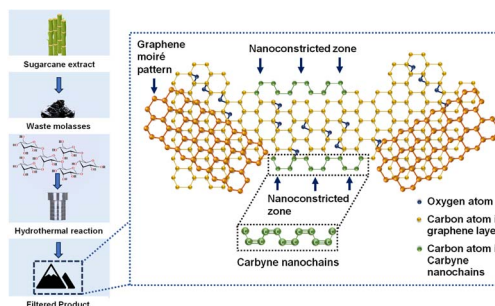
Shashank Mishra,* Fengyuan Liu, Dhayalan Shakthivel,
Beena Rai and Vihar Georgiev

Figure 1 consists of two parts. The left part is a schematic diagram showing the transition from a 'Square-ice like water structure' (top left, with a regular grid of red dots) to an 'Amorphous liquid water' structure (top right, with a disordered arrangement of red dots), indicated by an orange arrow. Below this, a cross-sectional diagram shows a 'Graphene' layer (blue) on top of a 'Gold' substrate (yellow). A layer of 'Water' (red dots) is trapped between them. Blue arrows point from the water structure diagrams to the water layer in the cross-section. A label 'Entrapped water between graphene and gold interphase' points to the water layer. The right part is a line graph of 'Traction Stress (GPa)' vs. 'Displacement (Å)'. It shows three curves: Scenario A (red), Scenario B (blue), and Scenario C (yellow). Scenario A has the highest peak stress (~0.32 GPa), followed by Scenario B (~0.18 GPa) and Scenario C (~0.12 GPa). All curves show a sharp drop in stress after the peak.

Viet Van Pham,^{*} Thang Quoc Nguyen, Hai Viet Le and Thi Minh Cao

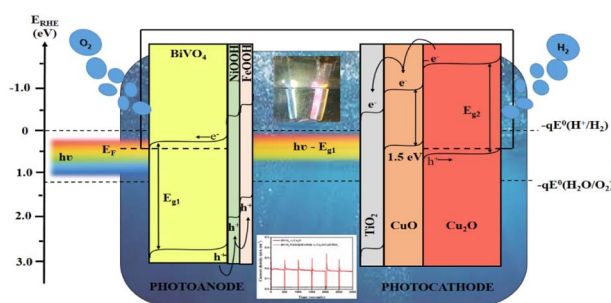


Sampathkumar Jeevanandham, Dakshi Kochhar,
Omnanayan Agrawal, Siddhartha Pahari, Chirantan Kar,
Tamal Goswami, Indra Sulania and Monalisa Mukherjee*



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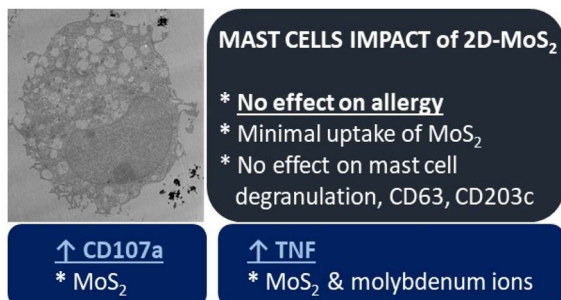
2407



Photoelectrochemical performance of a nanostructured BiVO₄/NiOOH/FeOOH–Cu₂O/CuO/TiO₂ tandem cell for unassisted solar water splitting

S. R. Sitaaraman, A. Nirmala Grace, Jiefang Zhu and Raja Sellappan*

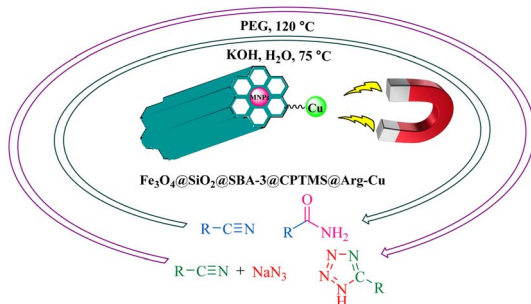
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Cytotoxicity assessment of exfoliated MoS₂ using primary human mast cells and the progenitor cell-derived mast cell line LAD2

Hazel Lin, Antonio Esau del Rio Castillo, Viviana Jehová González, Francesco Bonaccorso, Ester Vázquez, Bengt Fadeel and Alberto Bianco*

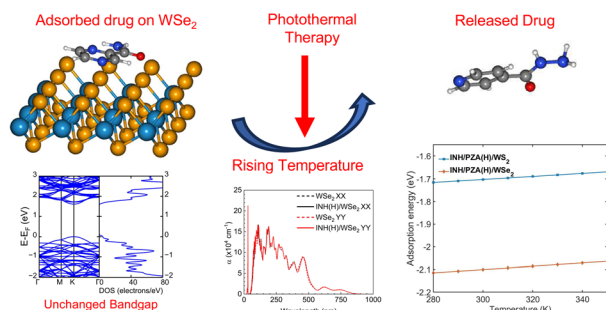
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Fe₃O₄@SiO₂@SBA-3@CPTMS@Arg-Cu: preparation, characterization, and catalytic performance in the conversion of nitriles to amides and the synthesis of 5-substituted 1H-tetrazoles

Zahra Heidarneshad, Arash Ghorbani-Choghamarani* and Zahra Taherinia

2447



First-principles calculations on monolayer WX₂ (X = S, Se) as an effective drug delivery carrier for anti-tuberculosis drugs

Khaled Mahmud, Taki Yashir and Ahmed Zubair*

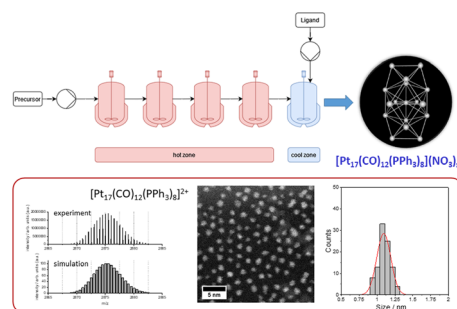


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Continuous flow synthesis of atom-precise platinum clusters

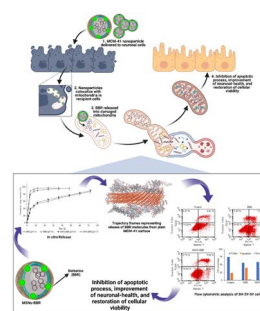
Christian Schmitt, Nicola Da Roit, Marco Neumaier, Carina B. Maliakkal, Di Wang, Thilo Henrich, Christian Kübel, Manfred Kappes and Silke Behrens*



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In vitro profiling and molecular dynamics simulation studies of berberine loaded MCM-41 mesoporous silica nanoparticles to prevent neuronal apoptosis

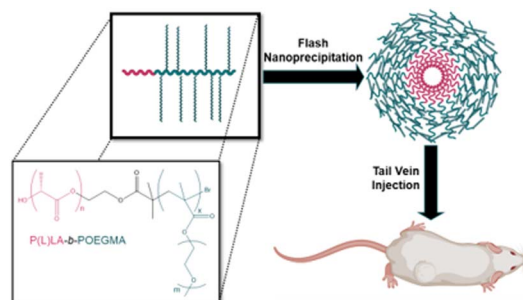
Anurag Kumar Singh, Snigdha Singh, Tarun Minocha, Sanjeev Kumar Yadav, Reema Narayan, Usha Yogendra Nayak, Santosh Kumar Singh* and Rajendra Awasthi*



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The effect of comb length on the *in vitro* and *in vivo* properties of self-assembled poly(oligoethylene glycol methacrylate)-based block copolymer nanoparticles

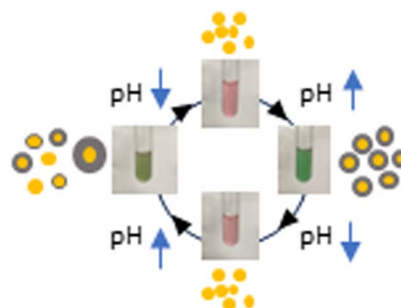
Andrew Singh, Andrew Lofts, Ramya Krishnan, Matthew Campea, Lan Chen, Yonghong Wan and Todd Hoare*



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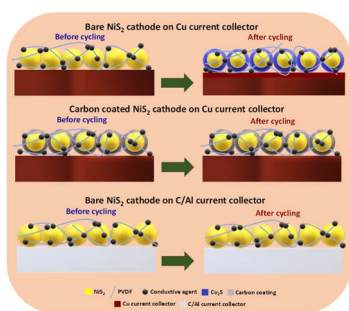
Gold–copper oxide core–shell plasmonic nanoparticles: the effect of pH on shell stability and mechanistic insights into shell formation

Stephen F. Bartolucci, Asher C. Leff and Joshua A. Maurer



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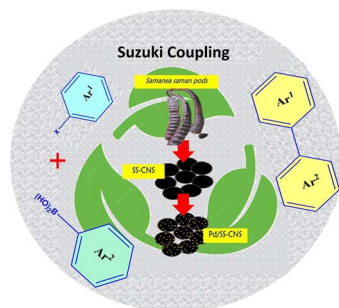
2508



Overcoming copper-induced conversion reactions in nickel disulphide anodes for sodium-ion batteries

Milan K. Sadan,^{*} Taehong Kim, Anupriya K. Haridas, Hooam Yu, Denis Cumming, Jou-Hyeon Ahn and Hyo-Jun Ahn^{*}

2516



Sustainable carbonaceous nanomaterial supported palladium as an efficient ligand-free heterogeneous catalyst for Suzuki–Miyaura coupling

Apoorva Shetty, Dhanya Sunil, Thitima Rujiralai, Sanjeev P. Maradur, Abdullah N. Alodhayb and Gurumurthy Hegde^{*}

CORRECTION

2527

Correction: Excitons in metal halide perovskite nanoplatelets: an effective mass description of polaronic, dielectric and quantum confinement effects

Jose L. Movilla, Josep Planelles and Juan I. Climente^{*}

