

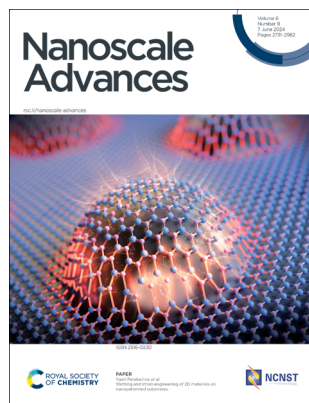
# Nanoscale Advances

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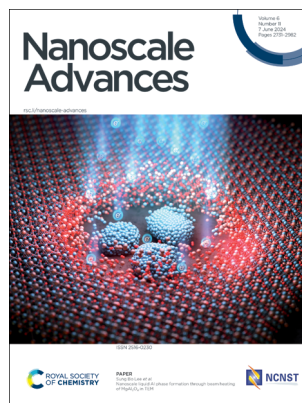
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## IN THIS ISSUE

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**Cover**  
See Vasili Perebeinos *et al.*, pp. 2823–2829. Image reproduced by permission of Vasili Perebeinos from *Nanoscale Adv.*, 2024, 6, 2823.



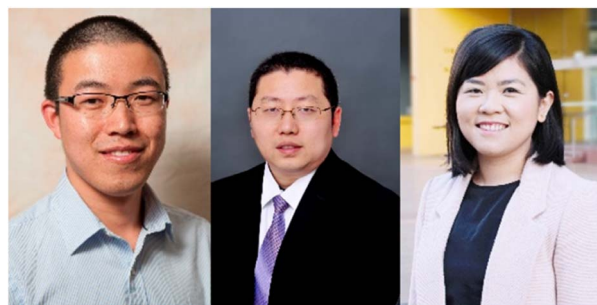
**Inside cover**  
See Sung Bo Lee *et al.*, pp. 2830–2837. Image reproduced by permission of Sung Bo Lee from *Nanoscale Adv.*, 2024, 6, 2830.

## EDITORIAL

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### Nanomaterials for gas sensing and delivery

Run Zhang, Songjun Zeng and Rona Chandrawati

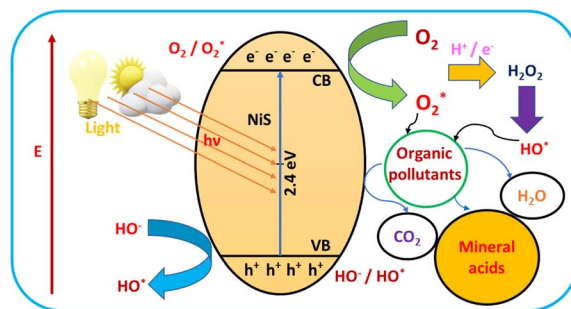


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### Nanocosmos of catalysis: a voyage through synthesis, properties, and enhanced photocatalytic degradation in nickel sulfide nanocomposites

Nityananda Sarkar, Soumya Ranjan Mishra, Vishal Gadore, Biswaranjan Panigrahi and Md. Ahmaruzzaman\*



# Environmental Science: Atmospheres

GOLD  
OPEN  
ACCESS

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and inspiring new ideas

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Fundamental questions  
Elemental answers

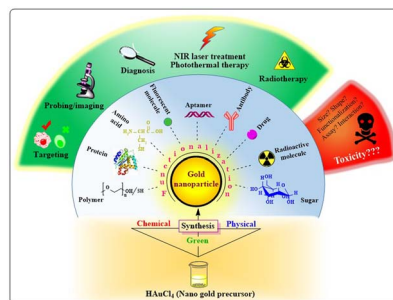


## REVIEWS

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## Tackling breast cancer with gold nanoparticles: twinning synthesis and particle engineering with efficacy

Suvadeep Mal, Subhasis Chakraborty, Monalisa Mahapatra, Kakarla Pakeeraiah, Suvadra Das, Sudhir Kumar Paidesetty\* and Partha Roy\*

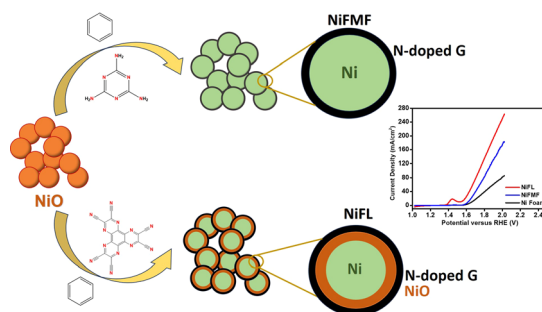


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## Facile synthesis of nanostructured Ni/NiO/N-doped graphene electrocatalysts for enhanced oxygen evolution reaction

Roshni Madampadi, Avit Bhogilal Patel, C. P. Vinod, Ritu Gupta and Dinesh Jagadeesan\*

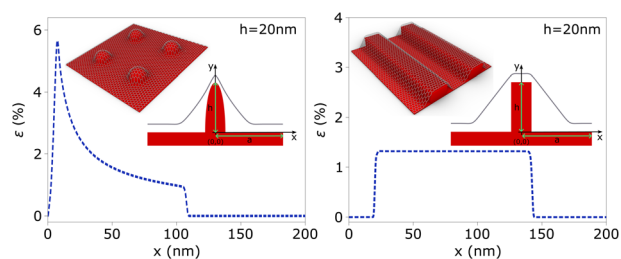


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## Wetting and strain engineering of 2D materials on nanopatterned substrates

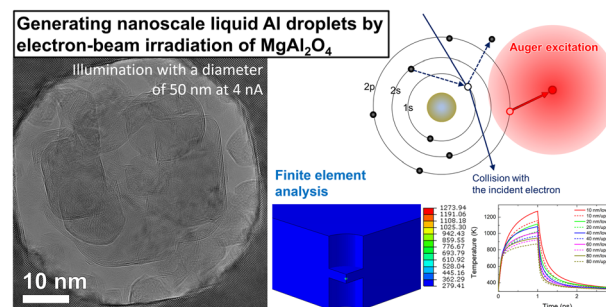
Davoud Adinehloo, Joshua R. Hendrickson and Vasili Perebeinos\*



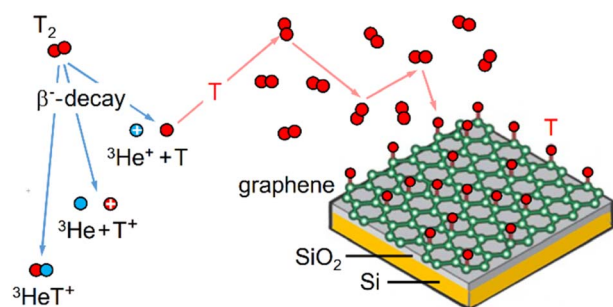
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## Nanoscale liquid Al phase formation through beam heating of MgAl<sub>2</sub>O<sub>4</sub> in TEM

Sung Bo Lee,\* Jun Young Chae and Heung Nam Han



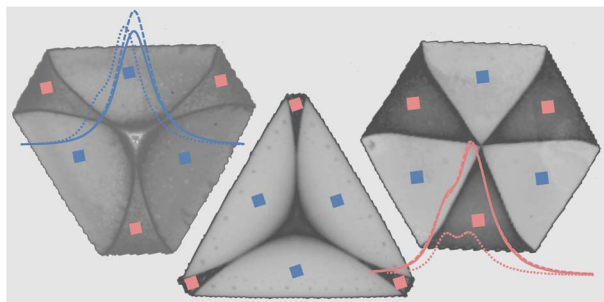
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### Demonstration of tritium adsorption on graphene

Genrich Zeller,\* Desedea Diaz Barrero, Paul Wiesen, Simon Niemes, Nancy Tuchscherer, Max Aker, Artus M. W. Leonhardt, Jannik Demand, Kathrin Valerius, Beate Bornschein, Magnus Schlösser and Helmut H. Telle

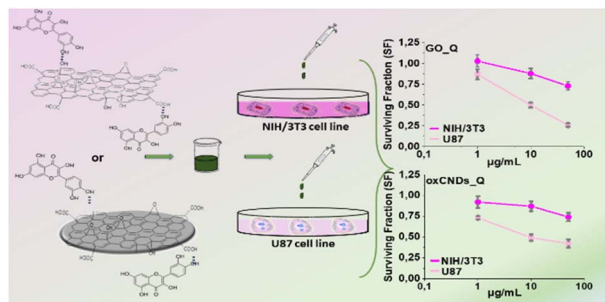
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### Determination and investigation of defect domains in multi-shape monolayer tungsten disulfide

H. Ağırcan, D. Convertino, A. Rossi, L. Martini, S. Pace, N. Mishra, K. Küster, U. Starke, G. Kartal Şireli, C. Coletti and S. Forti\*

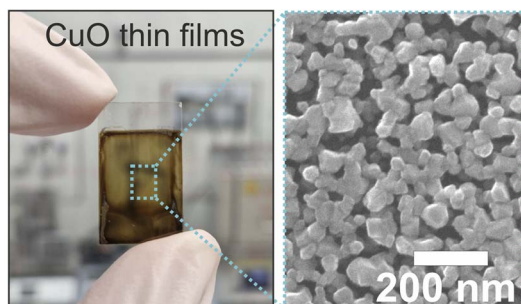
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### Graphene oxide and oxidized carbon nanodiscs as biomedical scaffolds for the targeted delivery of quercetin to cancer cells

Panagiota Zygouri, Grigorios Tsioudoulos, Marina Angelidou, Eirini Papanikolaou, Antrea-Maria Athinodorou, Yannis V. Simos,\* Konstantinos Spyrou,\* Mohammed Subrati, Antonios Kouloumpis, Angela S. Kaloudi, Georgios Asimakopoulos, Konstantinos Tsamis, Dimitrios Peschos, Patra Vezyraki, Vasileios Ragos and Dimitrios P. Gournis

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### On the structural evolution of nanoporous optically transparent CuO photocathodes upon calcination for photoelectrochemical applications

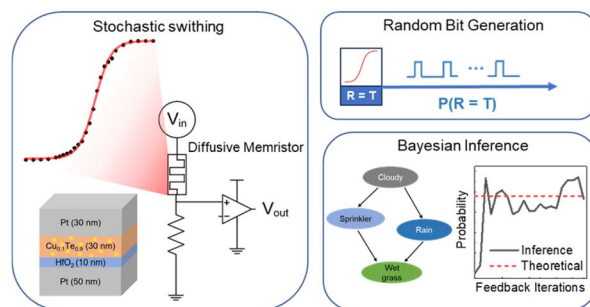
Lukas Korell, Stefan Lauterbach, Jana Timm, Li Wang, Maximilian Mellin, Anna Kundmann, Qingyang Wu, Chuanmu Tian, Roland Marschall, Jan P. Hofmann, Frank E. Osterloh and Marcus Einert\*



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## Implementation of Bayesian networks and Bayesian inference using a $\text{Cu}_{0.1}\text{Te}_{0.9}/\text{HfO}_2/\text{Pt}$ threshold switching memristor

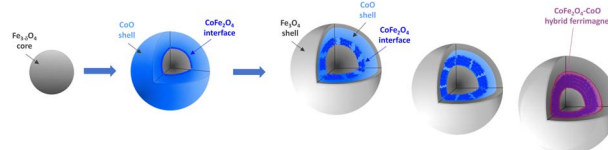
In Kyung Baek, Soo Hyung Lee, Yoon Ho Jang, Hyungjun Park, Jaehyun Kim, Sunwoo Cheong, Sung Keun Shim, Janguk Han, Joon-Kyu Han, Gwang Sik Jeon, Dong Hoon Shin, Kyung Seok Woo\* and Cheol Seong Hwang\*



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## Magnetic anisotropy engineering in onion-structured metal oxide nanoparticles combining dual exchange coupling and proximity effects

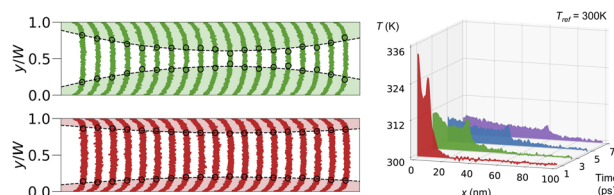
Kevin Sartori, Raul Lopez-Martin, Fadi Choueikani, Alexandre Gloter, Jean-Marc Grenèche, Sylvie Begin-Colin, Dario Taverna, Jose A. De Toro and Benoit P. Pichon\*



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## Quasiballistic thermal transport in submicron-scale graphene nanoribbons at room-temperature

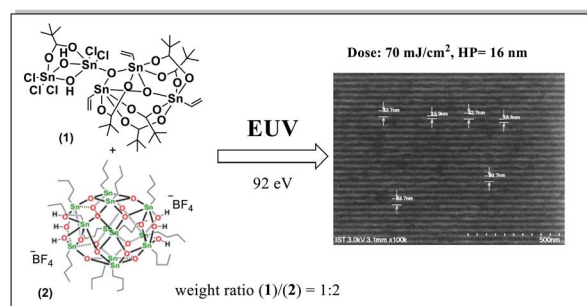
Soonsung So, Jae Hun Seol\* and Joo-Hyoung Lee\*



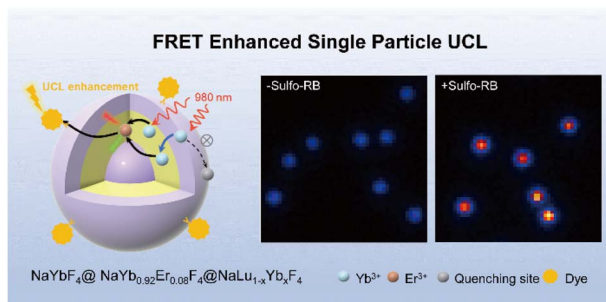
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## Synthesis of pentameric chlorotin carboxylate clusters for high resolution EUV photoresists under small doses

Cheng-Dun Li, Ting-An Lin, Po-Hsiung Chen, Tsai-Sheng Gau, Burn-Jeng Lin, Po-Wen Chiu\* and Jui-Hsiung Liu\*



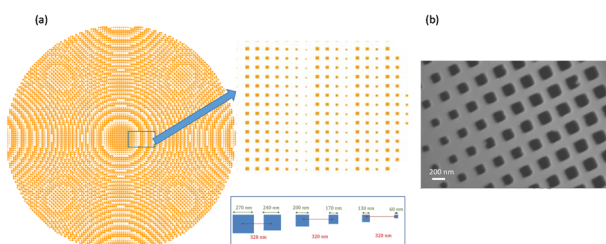
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### Single-particle Förster resonance energy transfer from upconversion nanoparticles to organic dyes

Jialing Hu, Fei Zhao, Huan Ling, Yunxiang Zhang and Qian Liu\*

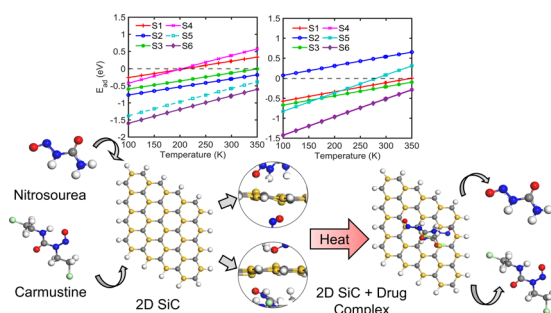
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### UV-assisted nanoimprint lithography: the impact of the loading effect in silicon on nanoscale patterns of metals

Zahrah Alnakhli, Zhiyuan Liu, Feras AlQatari, Haicheng Cao and Xiaohang Li\*

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### First-principles study of a SiC nanosheet as an effective material for nitrosourea and carmustine anti-cancer drug delivery

Abdullah Jubair Bin Iqbal, Rifat Shahriar and Ahmed Zubair\*

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### Expression of concern: Acceleration of ammonium phosphate hydrolysis using TiO<sub>2</sub> microspheres as a catalyst for hydrogen production

Ayman H. Zaki,\* Ahmed Esmail Shalan,\* Aya El-Shafeay, Yasser M. Gadelhak, Enas Ahmed, M. O. Abdel-Salam, M. Sobhi and S. I. El-dek

