

# Nanoscale Advances

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## IN THIS ISSUE

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### Cover

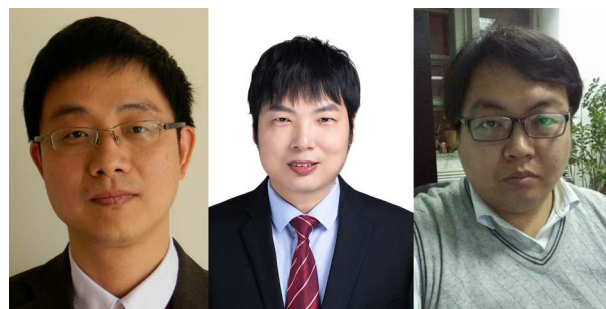
See Angela Lombardi, Flavia Nastro *et al.*, pp. 3533–3542.  
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## EDITORIAL

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### Introduction to nanoclusters: from theory to application

Yi Gao,\* Daojian Cheng\* and Zhigang Wang\*

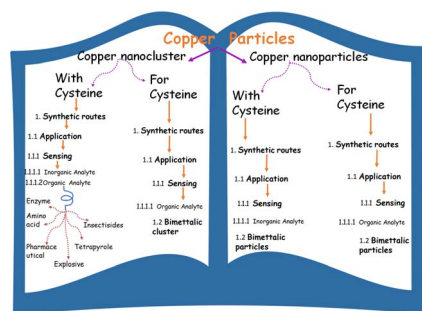


## REVIEWS

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### Analytical developments in the synergism of copper particles and cysteine: a review

Priyanka Sharma, Mainak Ganguly\* and Ankita Doi



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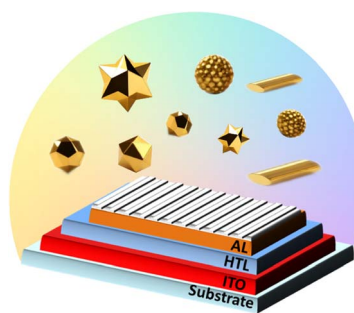
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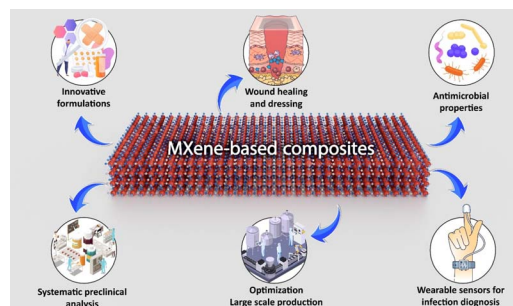
Fundamental questions  
Elemental answers

## REVIEWS

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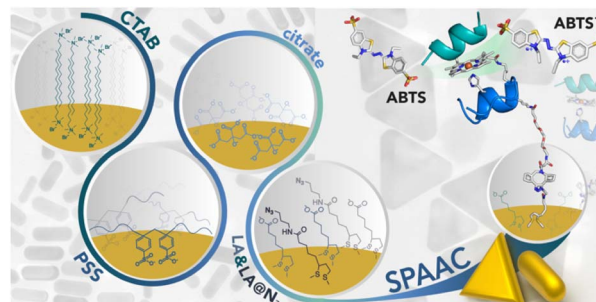
**Gold nanostructures/quantum dots for the enhanced efficiency of organic solar cells**Apichat Phengdaam,<sup>\*</sup> Sopit Phetsang, Sachiko Jonai, Kazunari Shinbo, Keizo Kato and Akira Baba<sup>\*</sup>

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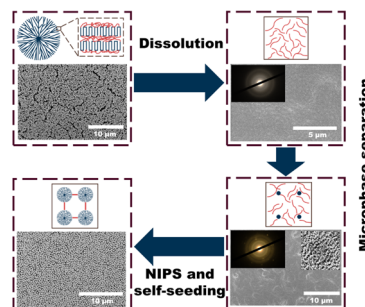
**MXene-based composites in smart wound healing and dressings**Atefeh Zarepour, Nesa Rafati, Arezoo Khosravi,<sup>\*</sup> Navid Rabiee, Siavash Irvani<sup>\*</sup> and Ali Zarrabi<sup>\*</sup>

## PAPERS

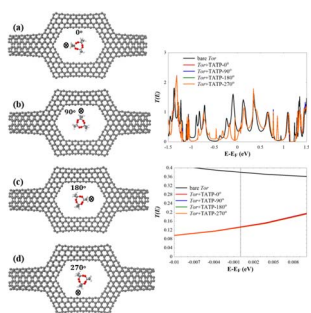
3533

**Biohybrid materials comprising an artificial peroxidase and differently shaped gold nanoparticles**Emilia Renzi, Alessandra Esposito, Linda Leone, Miriam Chávez, Teresa Pineda, Angela Lombardi<sup>\*</sup> and Flavia Nastro<sup>\*</sup>

3543

**Fabrication of nanoparticle array membranes by integrating semi-crystalline polymer self-assembly with NIPS for water treatment**Yu Ma, Xiaoli Zhao<sup>\*</sup> and Bin He<sup>\*</sup>

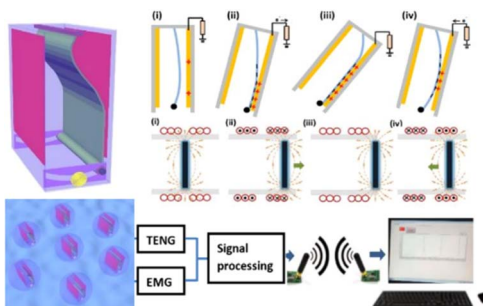
3553



### Robust nanotube-based nanosensor designed for the detection of explosive molecules

Laith A. Algharagholy, Víctor Manuel García-Suárez\* and Kareem Hasan Bardan

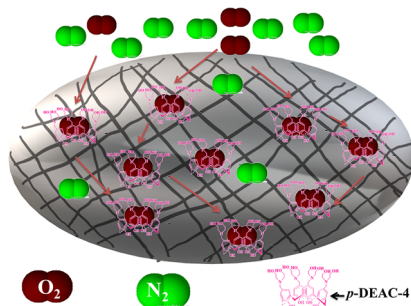
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### Triboelectric–electromagnetic hybrid nanogenerator for harvesting blue energy and creating an ocean wave warning system

Weichao Wang, Yaju Zhang,\* Guoxi Wu, Zhengyin Zhao, Yonghui Wu and Haiwu Zheng

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### The *p*-diethanolaminomethylcalix[4]arene-incorporated polyacrylonitrile-based facilitated-transport-nanofiber mat for O<sub>2</sub>/N<sub>2</sub> separation

Mehwish Ajmal, Saeed Ahmed Memon, Huma Shaikh,\* Shahabuddin Memon and Shahnila Shah

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### Blue phosphorene on Au(111): theoretical, spectroscopic and diffraction analysis reveal the role of single Au adatoms

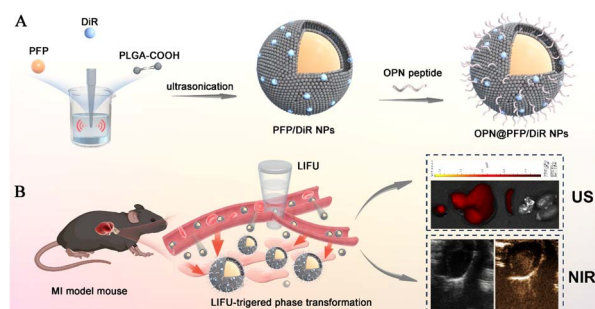
Simone Del Puppo, Pietro Biasin, Alessandro Sala,\* Paola Mantegazza, Ivan Pasqua, Elena Ghidorsi, Maria Caporali, Andrea Resta, Alessandro Coati, Francesca Genuzio, T. Onur Menteş, Andrea Locatelli, Giovanni Comelli, Cristina Africh, Erik Vesselli, Maria Peressi\* and Alberto Verdini\*



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### A non-invasive osteopontin-targeted phase changeable fluorescent nanoprobe for molecular imaging of myocardial fibrosis

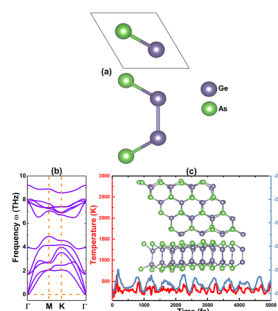
Xueli Zhao, Yuze Qin, Bo Wang, Jiao Liu, Yueyue Wang, Kun Chen, Jia Zhao, Lanlan Zhang, Yuanming Wu\* and Liwen Liu\*



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### Controlling the electronic and magnetic properties of the GeAs monolayer by generating Ge vacancies and doping with transition-metal atoms

D. M. Hoat,\* R. Ponce-Pérez, Chu Viet Ha and J. Guerrero-Sanchez



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### Pd NPs decorated on crosslinked sodium alginate modified iron-based metal-organic framework Fe(BTC) as a green multifunctional catalyst for the oxidative amidation

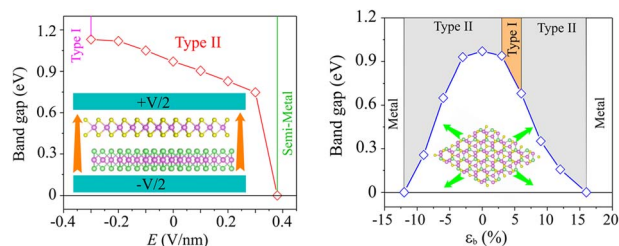
Samaneh Koosha, Ramin Ghorbani-Vaghei,\* Sedigheh Alavinia, Rahman Karimi-Nami and Idris Karakaya



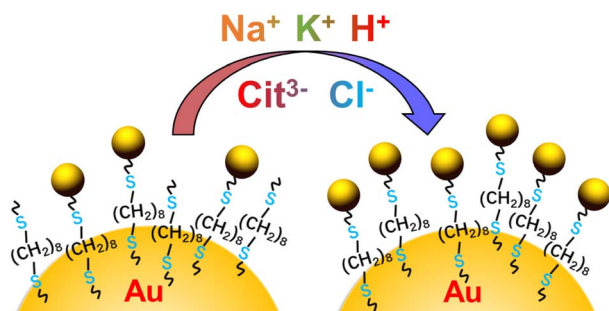
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### First-principles investigations of the controllable electronic properties and contact types of type II MoTe<sub>2</sub>/MoS<sub>2</sub> van der Waals heterostructures

Son T. Nguyen, Nguyen V. Hieu, Huy Le-Quoc, Kien Nguyen-Ba,\* Chuong V. Nguyen, Huynh V. Phuc and Cuong Q. Nguyen\*



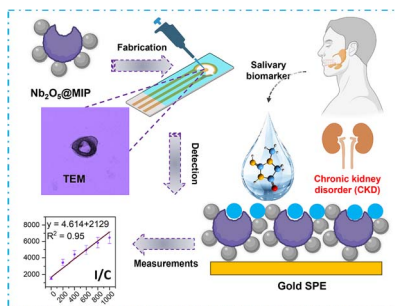
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### Rapid formation of gold core–satellite nanostructures using Turkevich-synthesized satellites and dithiol linkers: the do's and don'ts for successful assembly

Runze Tang, Robert A. Hughes, Walker J. Tuff, Ana Corcoran and Svetlana Neretina\*

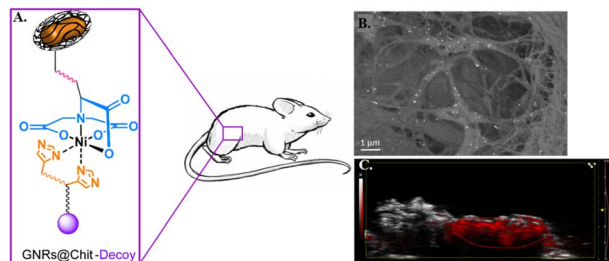
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### Core–shell niobium(v) oxide@molecularly imprinted polythiophene nanoreceptors for transformative, real-time creatinine analysis

Zohaib Saddique, Maleeha Saeed, Muhammad Faheem, Sadia Z. Bajwa, Adnan Mujahid and Adeel Afzal\*

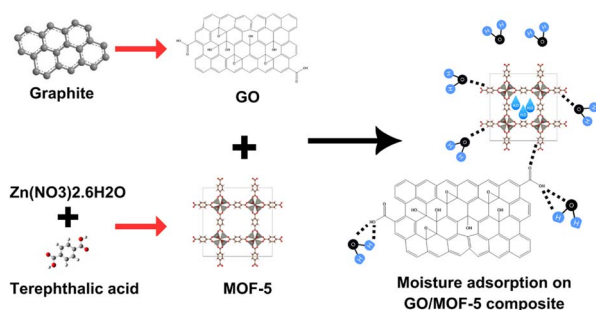
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### Contrast enhanced photoacoustic detection of fibrillar collagen in the near infrared region-I

Inna Solomonov, Irene Locatelli, Silvia Tortorella, Manu Unni, Shay-Lee Aharoni, Elisa Alchera, Erica Locatelli, Mirko Maturi, Chiara Venegoni, Roberta Lucianò, Andrea Salonia, Angelo Corti, Flavio Curnis, Valeria Grasso, Gayathri Malamal, Jithin Jose, Mauro Comes Franchini,\* Irit Sagi\* and Massimo Alfano\*

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### A comparative study of moisture adsorption on GO, MOF-5, and GO/MOF-5 composite for applications in atmospheric water harvesting

Muhammad Saeed-Ul-Hassan, Muhammad Ehtisham, Ahmad K. Badawi, Asad Muhammad Khan, Rafaqat Ali Khan and Bushra Ismail\*



## CORRECTIONS

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**Correction: Physical probing of quantum energy levels in a single indium arsenide (InAs) quantum dot**

Moh'd Rezeq,\* Yawar Abbas, Boyu Wen, Zbig Wasilewski and Dayan Ban\*

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**Correction: Improvements in properties of polybenzoxazine-based laser-induced graphene (LIG) by alloying with polyimide and modeling of production process**

Ibrahim Lawan, Panuwat Luengrojanakul, Krittapas Charoensuk, Hariharan Argunam, Cheol-Hee Ahn and Sarawut Rimdusit\*

