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Cover
See Miguel Monge, José M. López-de-Luzuriaga *et al.*, pp. 3228–3235. Image reproduced by permission of Miguel Monge from *Nanoscale Adv.*, 2025, **7**, 3228.

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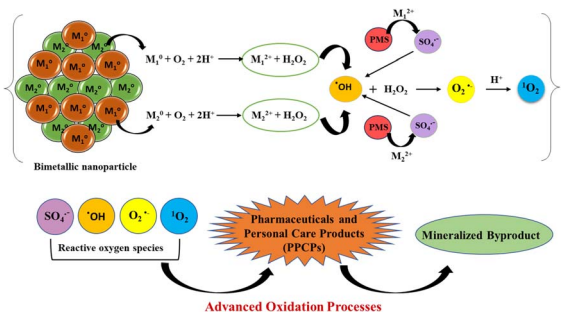
Bimetallic nanoparticles as pioneering eco-friendly catalysts for remediation of pharmaceuticals and personal care products (PPCPs)

Jyoti Rani, Tamanna Goyal, Arshdeep Kaur, Subbulakshmi Ganesan, Ashwani Kumar Sharma, Ashish Singh Chauhan, Sandeep Kaushal* and Sandeep Kumar*



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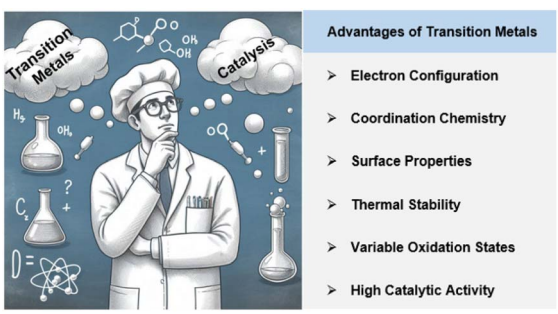
A comprehensive review on carbonylation reactions: catalysis by magnetic nanoparticle-supported transition metals

Irfan Ahmad, Munthar Kedhim, Yashwantsinh Jadeja, Gargi Sangwan, Kavitha V., Aditya Kashyap, Shirin Shomurotova, Mosstafa Kazemi* and Ramin Javahershenas*



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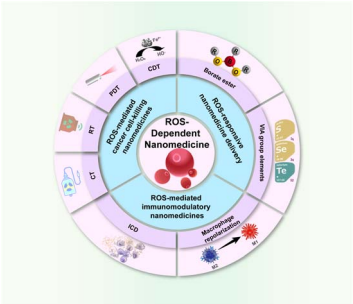
REVIEWS

3210

Reactive oxygen species-dependent nanomedicine therapeutic modalities for gastric cancer

Zhiyan Li, Yanjun Lu, Lulu Wang, Liuyi Shi and Tao Wang*



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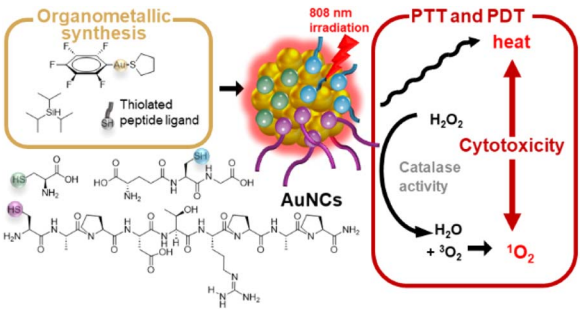
An organometallic approach to sub-2 nm thiolate-protected Au nanoclusters with enhanced catalytic and therapeutic properties

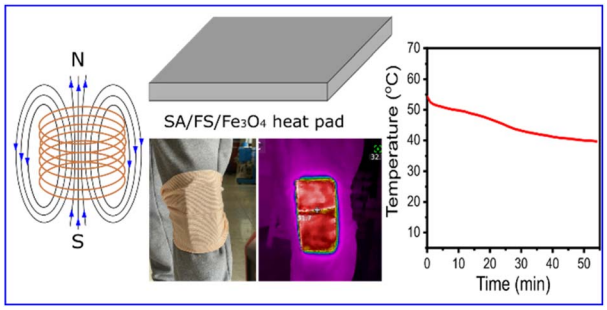
Irene del-Campo, Alba Sorroche, Nina Allen, Mattia Ghirardello, Francisco Corzana, M. Carmen Galán, Miguel Monge* and José M. López-de-Luzuriaga*



3236

Stearic acid/fumed silica/Fe_3O_4 composite phase change materials with low thermal conductivities and magnetically accelerated heating performance for wearable thermotherapy

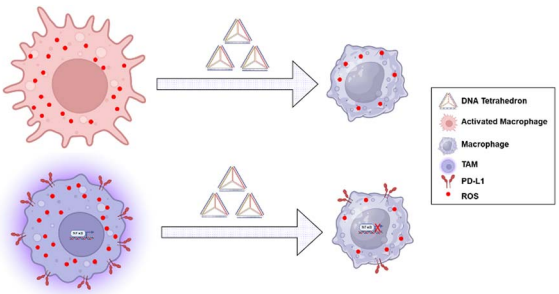
Giang Tien Nguyen,* Van Khanh Thi Nguyen and Thanh Sang Nguyen



3247

Designer DNA nanocages modulate anti-oxidative and anti-inflammatory responses in tumor associated macrophages

Payal Vaswani and Dhiraj Bhatia*



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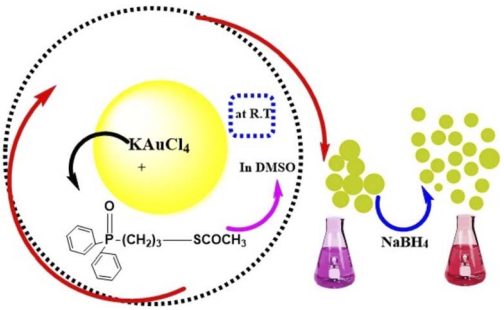
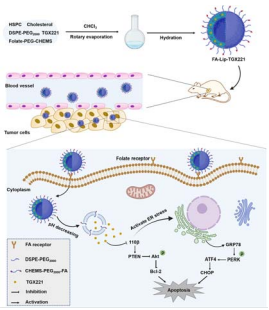


Gold nanoparticles functionalized by phosphine oxide derivatives: characterization and influence of ligand structure on their stability

Wanisa Abdussalam-Mohammed,* Mashael M. Alshaikh, Pawan Shah and Ajaya Bhattarai*

3267



Folate receptor-targeted pH-sensitive liposomes loaded with TGX-221 against prostate cancer by inhibiting PI3K/110β signaling

Weibo Xu, Xiaohan Li, Fujin He, Han Zhao, Jing Wu, Mengyu Li, Xiaoying Dai, Yanmin Li, Xiaojiao Hu, Xiaodong Li, Juan Cen,* Peng Guo* and Shaofeng Duan*

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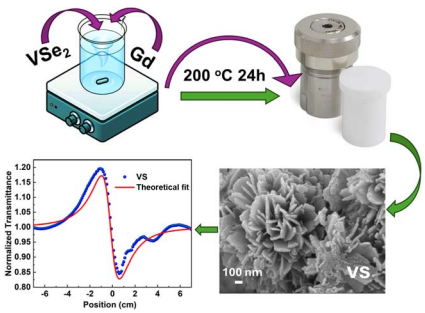

Optical nonlinearity of Gd-doped VSe_2 nanoflowers for photonic device applications

Abinash Parida, Banaja Dandasena, Tapas Kumar Mallik, Sripan Chinnaiyah and Ramakanta Naik*

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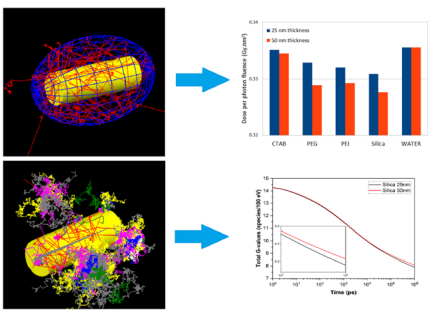

The role of coating layers in gold nanorods' radioenhancement: a Monte Carlo analysis

Taheri A.,* Khandaker M. U.,* Rabus H., Moradi F. and Bradley D. A.

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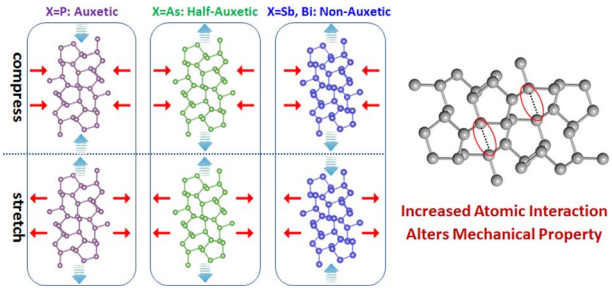
New phases of 2D group-VA nanostructures with unusual auxetic mechanical properties induced by the regularity of the interatomic interaction force

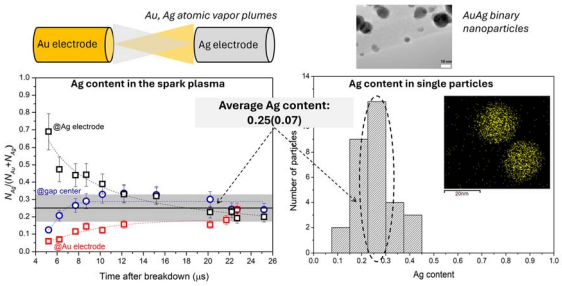
Hong Zheng,* Zhenhan Zhao, Jiasheng Chen, Hanwen Qin, Jun Li and Xiang Zhao*



3322

Gold–silver alloy nanoparticle formation *via* spark ablation: the dynamics of material mixing

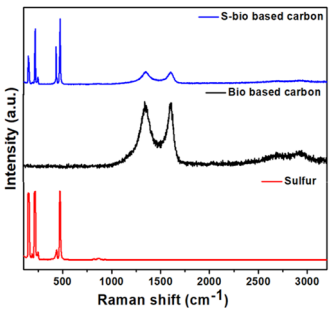
Attila Kohut,* Lajos Péter Villy, Linnéa Jönsson, Dániel Megyeri, Gábor Galbács, Maria E. Messing and Zsolt Geretovszky



3331

A renewable carbon material derived from native European deciduous trees serves as a sustainable electroactive substance for multifunctional energy storage systems

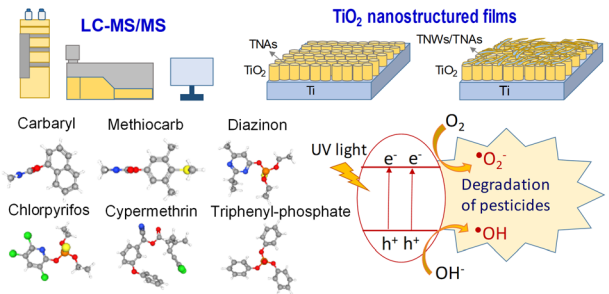
Surjit Sahoo,* Thiba Nagaraja, Monika Michalska and Suprem R. Das*



3344

Development of a UPLC-MS/MS method for pesticide analysis in paddy water and evaluation of anodic TiO_2 nanostructured films for pesticide photodegradation and antimicrobial applications

Phuoc Huu Le, Thao Phuong Huynh, Teng-Ping Chu, Loc Tan Nguy, Ngo Ngoc Uyen and Tho Chau Minh Vinh Do*



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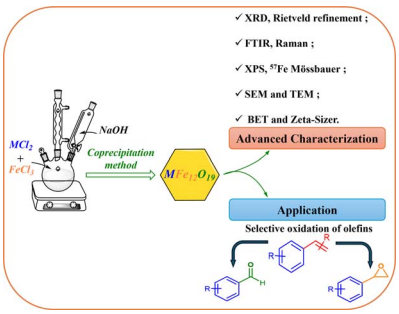

Magnetically recoverable $MFe_{12}O_{19}$ nanoparticles as efficient and environmentally benign catalysts for gram-scale selective oxidation of olefins

Mouhsine Laayati, Ayoub Abdelkader Mekkaoui,* Ahsen Sare Yalın, Abdelhamid El Boubekri, Mohammed Sajieddine, Larbi El Firdoussi, Antonia Neels, Önder Metin and Soufiane El Houssame*

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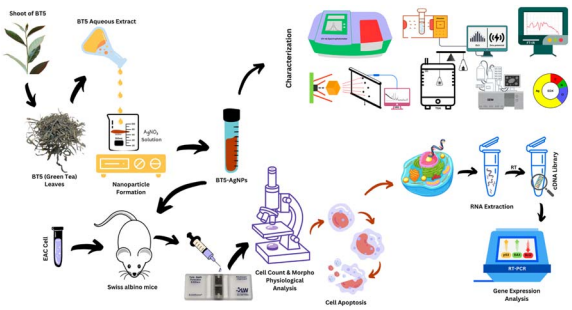

Green synthesis of silver nanoparticles using the BT5 tea cultivar of Bangladesh: unveiling molecular mechanisms of anti-cancer activity in mice model

Sk. Md. Atiqur Rahman, Rokshana Ara Ruhi, Md. Mahmudul Hasan Maruf, Md. Ragib Shariar, Mobasshir Noor Shehab, Khaled Mahmud Sujon, Mohammad Saiful Islam, Md. Abdul Aziz, Firoz Ahmed, Ananda Kumar Saha, Md. Anwarul Kabir Bhuiya* and Md. Abu Reza*

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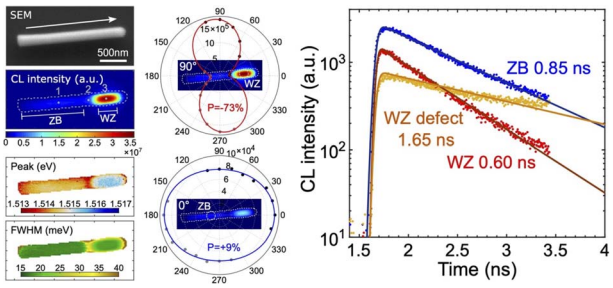

Undoped and doped wurtzite GaAs probed by polarization- and time-resolved cathodoluminescence

Hung-Ling Chen, Thomas Bidaud, Andrea Scaccabarozzi, Romaric De Lépinau, Fabrice Oehler, Gilles Patriarche, Sophie Bouchoule, Jean-Christophe Harmand, Andrea Cattoni and Stéphane Collin*

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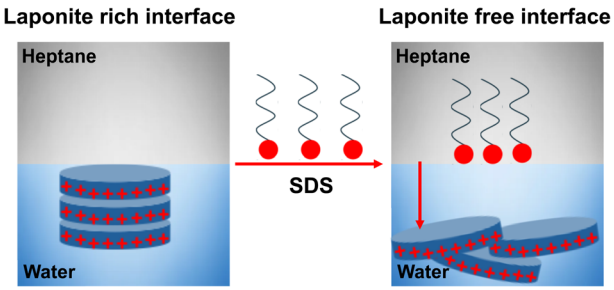

Directing the adsorption and assembly of laponite nano-discs at oil–water interfaces

Sohaib Mohammed, Ahmed W. Alsmaeil, Hassnain Asgar, Prince Ochonma, Antonios Kouloumpis, Yang Jia, Rituparna Hazra, Ivan Kuzmenko, Emmanuel P. Giannelis and Greeshma Gadikota*

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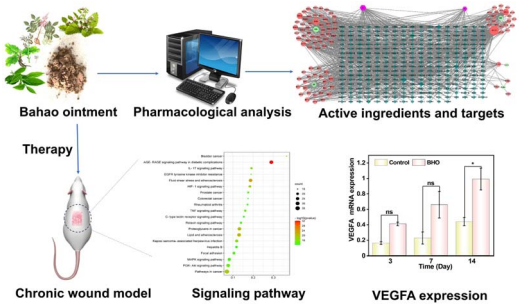
Molecular insight of nanosized Ba-Hao herbal ointment in accelerating chronic wound healing

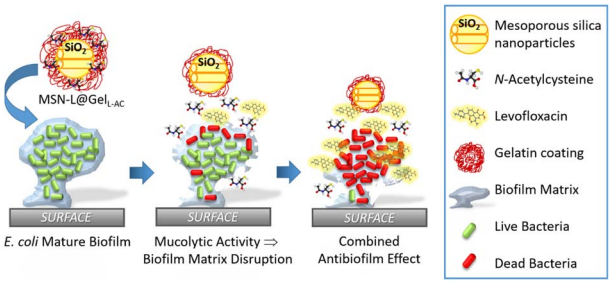
Han-Ying Qian, Lu Chen, Xiao-Man Zhang, Le Qiu, Fei Wang, Ting Feng, Jie Shan,* Xun Yuan* and Xu-Lin Chen*



3414

Mucolytic and antibiotic combination therapy using silica-based nanocarriers to eradicate *Escherichia coli* biofilms

Anna Aguilar-Colomer, Carla Jiménez-Jiménez, Blanca González, Jaime Esteban, María Vallet-Regí, Montserrat Colilla* and Isabel Izquierdo-Barba*



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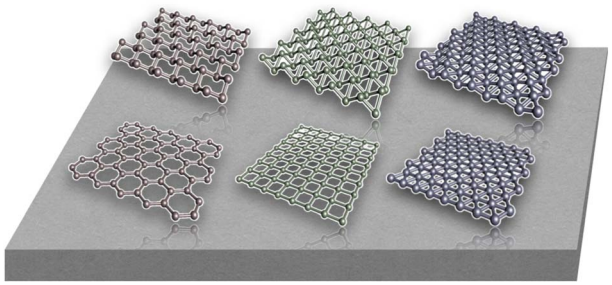
The structural behavior of physisorbed metallenes

Pekka Koskinen* and Kameyab Raza Abidi



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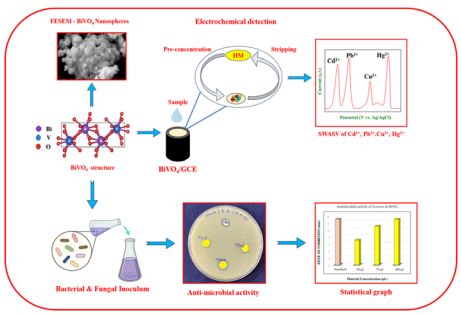
Simultaneous electrochemical detection of heavy metal ions using a sol–gel synthesized $BiVO_4$ nanosphere modified electrode and its antimicrobial activity

Keerthana Madhivanan, Raji Atchudan, Sandeep Arya and Ashok K. Sundramoorthy*



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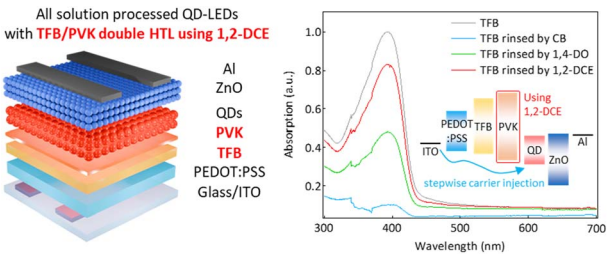

Improved performance of all-solution-processed quantum dot light-emitting diodes with TFB/PVK double-hole transport layers using 1,2-dichloroethane

Jaeyeop Lee, Woon Ho Jung, Kyoungeun Lee, Yeyun Bae, Minseok Choi, Jiyoon Oh, Jaehoon Lim and Jeongkyun Roh*

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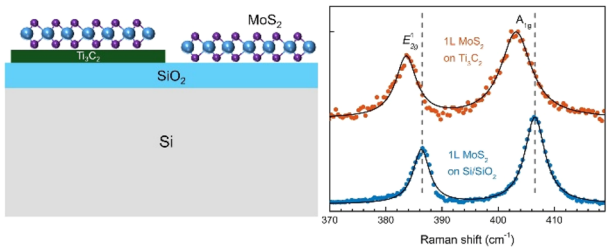

Raman spectroscopy of 2D MoS_2 on Ti_3C_2 MXene: the substrate effect

Ethan Pollack, Qiaohui Zhou, Elham Loni, Kenneth Agbakansi, Ahmad Majed, Fei Wang, Ali Soleymani, Melena Busse, Michael Naguib and Xin Lu*

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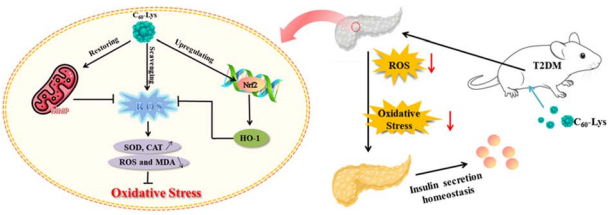

A novel fullerene-lysine derivative with noticeable ROS scavenging capabilities for improving type 2 diabetes mellitus

Jiaqi Weng, Wei Guo, Jie Liu, Kollie Larwubah, Jianjun Guo, Yanrong Jia* and Meilan Yu*

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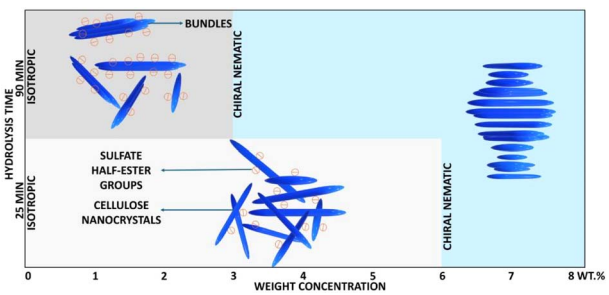

Tuning the phase separation of cellulose nanocrystals with hydrolysis times: influence of effective dimensions

Shiyao Hong, Ashley Bean, Yuan Fang, Nathalie Lavoine* and Lucian Lucia*

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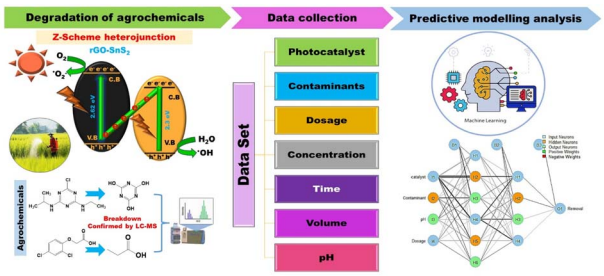
Designing a Z-scheme rGO–SnS_2 synergistic photocatalyst for photocatalytic mineralization of atrazine and 2,4-dichlorophenoxyacetic acid and applying machine learning for predictive modelling of photocatalytic performance

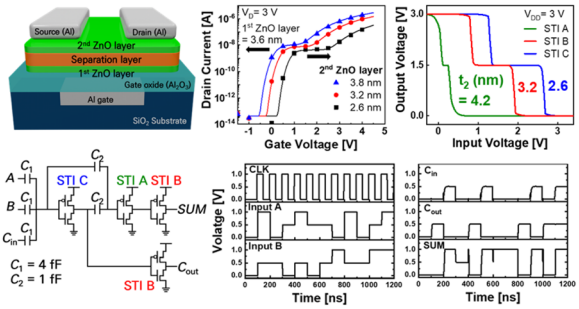
Jinal Patel, Megha Parmar, Syed Shahabuddin,* Inderjeet Tyagi, Suhas and Rama Gaur*



3508

An area and power efficient ternary serial adder using phase composite ZnO stack channel FETs

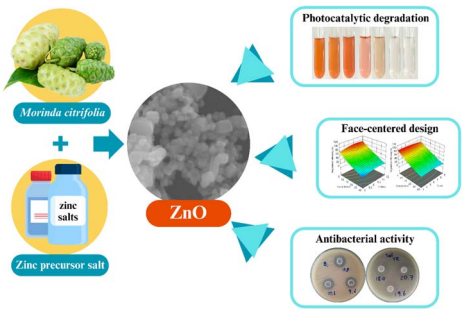
Kiyung Kim, Sunmean Kim, So-Young Kim, Yongsu Lee, Hae-Won Lee, Seokhyeong Kang and Byoung Hun Lee*



3514

Antibacterial and photocatalytic activities of fruit-extract-mediated synthesized ZnO nanoparticles

Ngoan Thi Thao Nguyen, Anh Nguyen Quynh Phan, Thuan Van Tran* and Thuy Thi Thanh Nguyen*



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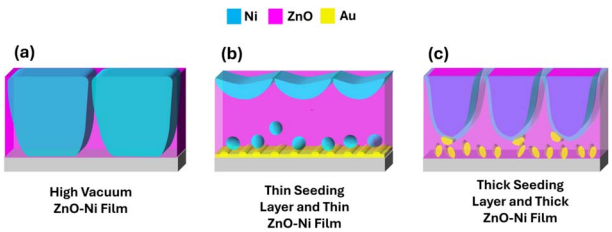
Morphology and property tuning in ZnO–Ni hybrid metamaterials in vertically aligned nanocomposite (VAN) form

Nirali A. Bhatt, Lizabeth Quigley, Shiyu Zhou, Anirutha Gnanasabai, Abhijeet Choudhury, Yizhi Zhang, Jianan Shen, Juanjuan Lu, Aleem Siddiqui, Raktim Sarma and Haiyan Wang*



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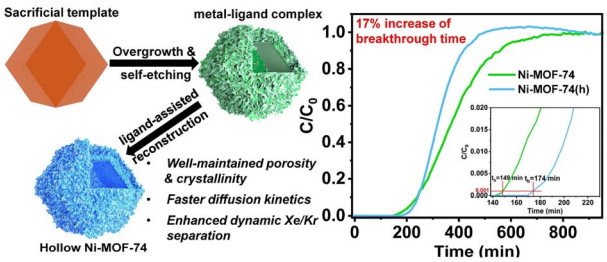

A facile two-step synthesis of hollow MOF-74 for enhanced dynamic Xe/Kr separation

Chunhui Wu,* Xiaoling Wu, He Zhou, Youshi Zeng, Xinxin Chu,* Wei Liu and Tao Li*

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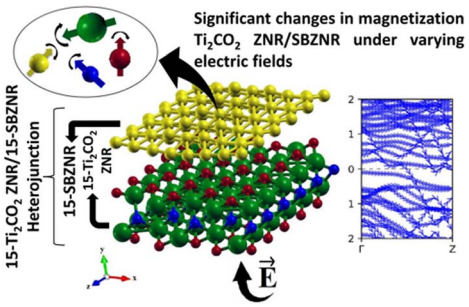

The electronic properties of functionalized MXene M_2XT_2 (M = Ti, Zr, Sc; X = C; T = O, F) nanoribbon/striped borophene nanoribbon heterojunctions

Mahdi Shirazinia and Edris Faizabadi*

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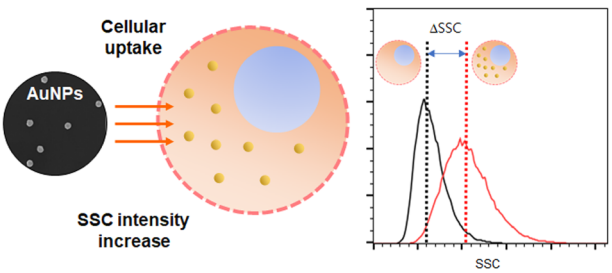

Quantification of cellular uptake of gold nanoparticles *via* scattering intensity changes in flow cytometry

Hye Ji Shin, Minjeong Kwak, Ik Hwan Kwon, Sook Heun Kim and Ji Youn Lee*

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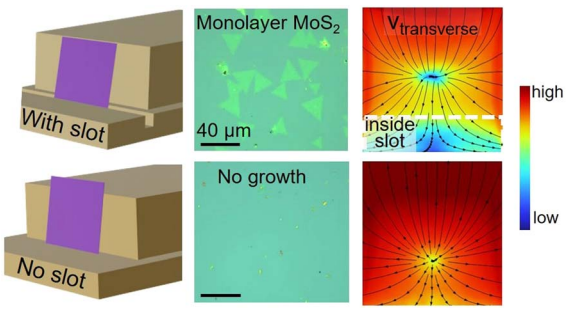

Critical role of precursor flux in modulating nucleation density in 2D material synthesis revealed by a digital twin

Abhinav Sinha, Manvi Verma, Nandeesh Kumar K. M., Keerthana S. Kumar, Ananth Govind Rajan* and Akshay Singh*

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Metasurface-enabled small-satellite polarisation imaging

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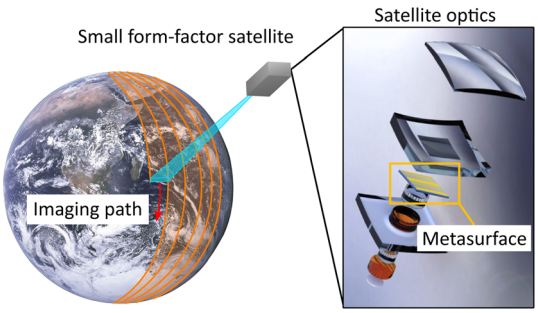

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