

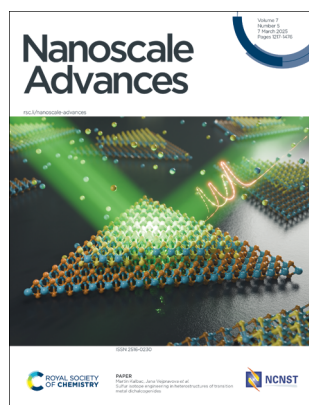
# Nanoscale Advances

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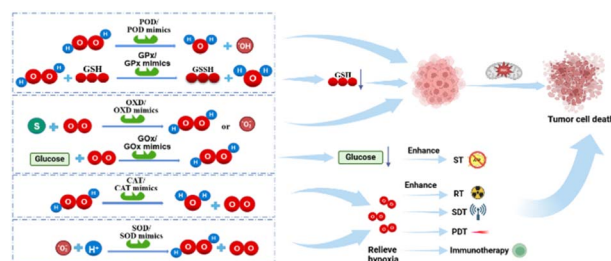
**Cover**  
See Martin Kalbac, Jana Vejpravova *et al.*, pp. 1276–1286. Image reproduced by permission of Jana Kalbáčová Vejpravová from *Nanoscale Adv.*, 2025, 7, 1276.

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### Emerging engineered nanozymes: current status and future perspectives in cancer treatments

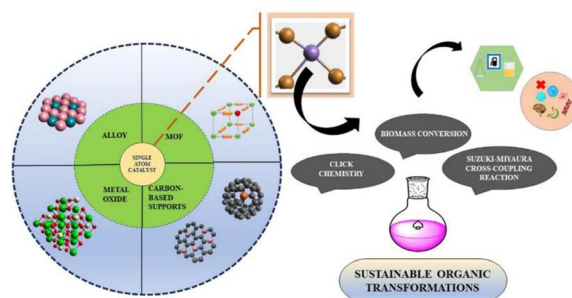
Jiajia Zheng, Weili Peng, Houhui Shi, Jiaqi Zhang, Qinglian Hu and Jun Chen\*



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### Structure–activity relationships in the development of single atom catalysts for sustainable organic transformations

Deepshikha Roy and Kalyanjyoti Deori\*



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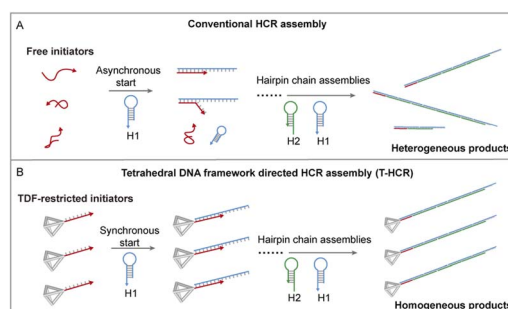
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Dongdong He, Pengyao Wei, Lin Li, Pan Fu, Jianping Zheng\* and Kaizhe Wang\*

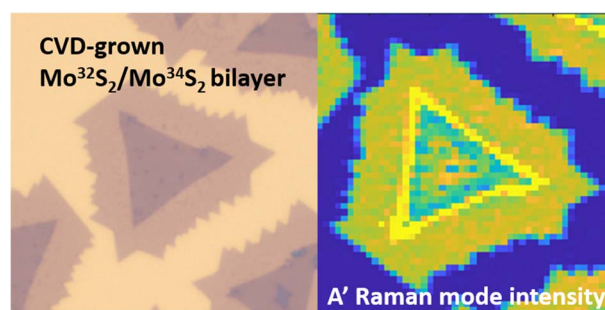


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### Sulfur isotope engineering in heterostructures of transition metal dichalcogenides

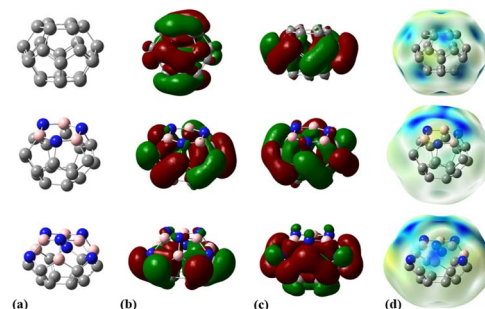
Vaibhav Varade, Golam Haider, Martin Kalbac\* and Jana Vejpravova\*



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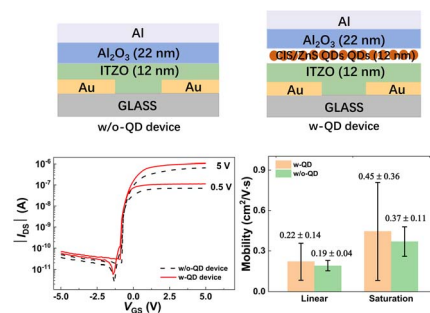
Azam Moumivand, Fereshteh Naderi,\* Omid Moradi and Batoul Makiabadi



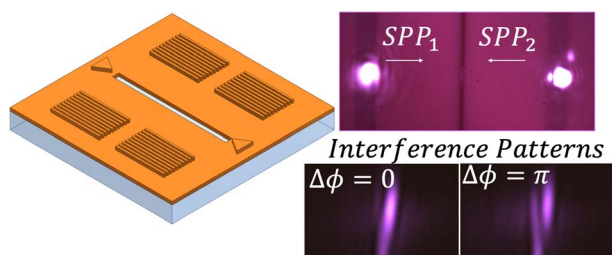
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### Performance enhancement of InSnZnO thin-film transistors by modifying the dielectric-semiconductor interface with colloidal quantum dots

Sijie Chen, Haoran Chen, Chenghui Xia\* and Zhenhua Sun\*



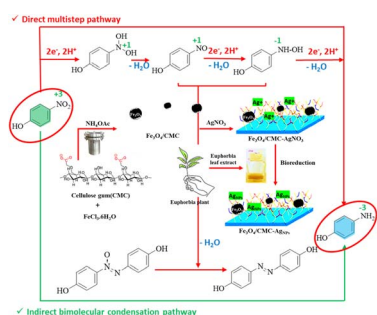
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### Selective modal excitation in a multimode nanoslit by interference of surface plasmon waves

Marcos Valero, Luis-Angel Mayoral-Astorga, Howard Northfield, Hyung Woo Choi, Israel De Leon, Mallar Ray\* and Pierre Berini\*

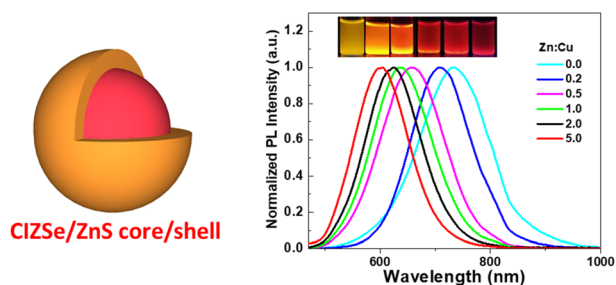
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Mojtaba Azizi,\* Mahdi Jafari and Sadegh Rostamnia\*

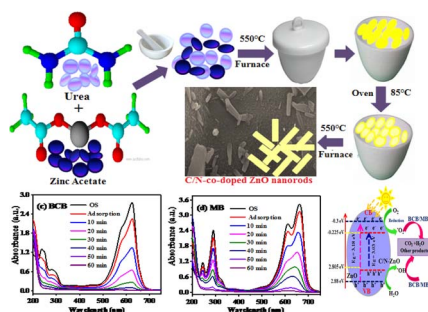
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### Investigation of the photocatalytic potential of C/N-co-doped ZnO nanorods produced via a mechano-thermal process

Parmeshwar Lal Meena,\* Ajay Kumar Surela, Lata Kumari Chhachhia, Jugmohan Meena and Rohitash Meena



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### Pre-validation of a novel reconstructed skin equivalent model for skin irritation and nanoparticle risk assessment

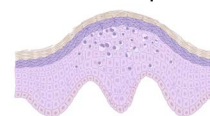
Priscila Laviola Sanches, Rosana Bizon Vieira Carias, Gutember Gomes Alves, Carolina Motter Catarino,\* Bruna Bosquetti, Meg Cristina De Castilho Costa, Andrezza Di Pietro Micali, Desirée Cigaran Schuck, José Mauro Granjeiro\* and Ana R. Ribeiro\*

Epidermis model construction



OECD TG 439  
Epidermis morphology  
Cytokine production

NPs exposure

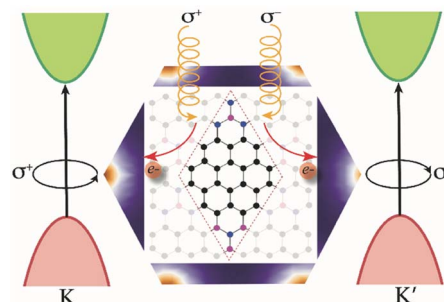


OECD TG 439  
Epidermis morphology  
Cytokine production  
NPs internalization

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### Excitonic circular dichroism in boron–nitrogen cluster decorated graphene

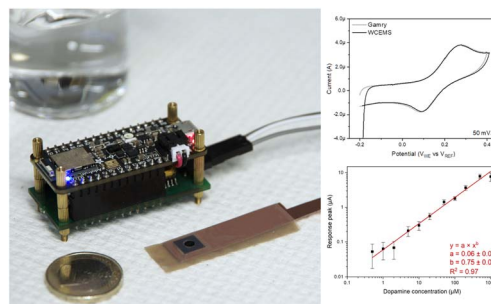
Shneha Biswas,\* Souren Adhikary\* and Sudipta Dutta\*



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### A customizable wireless potentiostat for assessing Ni(OH)<sub>2</sub> decorated vertically aligned MoS<sub>2</sub> thin films for electrochemical sensing of dopamine

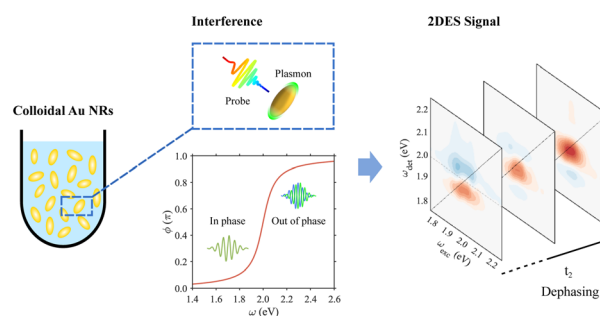
Topias Järvinen,\* Olli Pitkänen, Tomi Laurila, Minna Mannerkorpi, Simo Saarakkala and Krisztian Kordas



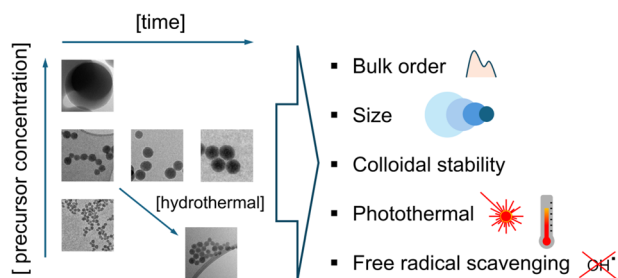
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### Direct quantification of the plasmon dephasing time in ensembles of gold nanorods through two-dimensional electronic spectroscopy

Federico Toffoletti and Elisabetta Collini\*



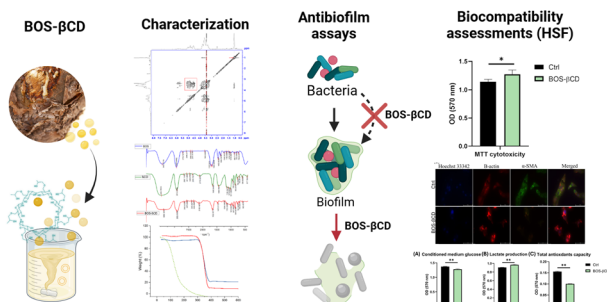
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### Hydrothermal carbonization synthesis of amorphous carbon nanoparticles (15–150 nm) with fine-tuning of the size, bulk order, and the consequent impact on antioxidant and photothermal properties

Francesco Barbero,\* Elena Destro, Aurora Bellone, Ludovica Di Lorenzo, Valentina Brunella, Guido Perrone, Alessandro Damin and Ivana Fenoglio

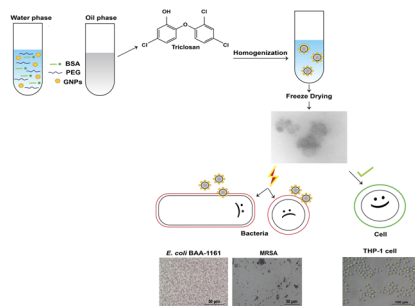
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### A biocompatible $\beta$ -cyclodextrin inclusion complex containing natural extracts: a promising antibiofilm agent

Obaydah Abd Alkader Alabraham, Mostafa Fytory, Ahmed M. Abou-Shanab, Jude Lababidi, Wolfgang Fritzsche, Nagwa El-Badri\* and Hassan Mohamed El-Said Azzazy\*

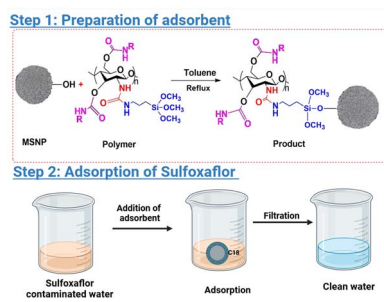
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Arathy J. Nair and Dakrong Pisuwan\*

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### Synthesis of chiral mesoporous silica nanoparticles for the adsorptive removal of the chiral insecticide sulfoxaflor from water

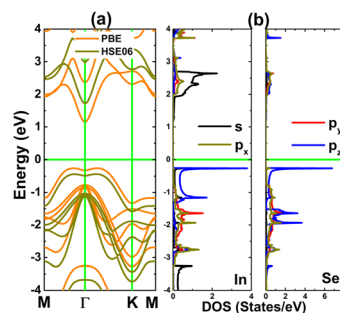
Sarah Alharthi, Ashraf Ali\* and Eman Y. Santali



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## Band structure and magnetism engineering of InSe monolayers through doping with IVA- and VA-group atoms: role of impurities

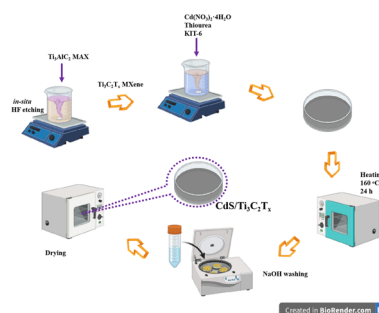
Nguyen Thi Han, J. Guerrero-Sanchez and D. M. Hoat\*



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## Highly selective ethanol gas sensor based on CdS/Ti<sub>3</sub>C<sub>2</sub>T<sub>x</sub> MXene composites

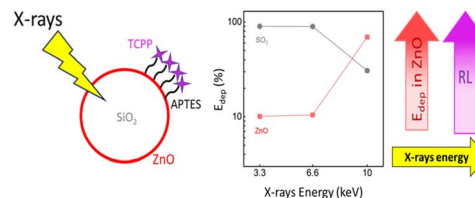
Ly Tan Nhiem, Jianbin Mao, Qui Thanh Hoai Ta\* and Soonmin Seo\*



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## The role of energy deposition on the luminescence sensitization in porphyrin-functionalized SiO<sub>2</sub>/ZnO nanoparticles under X-ray excitation

Irene Villa,\* Roberta Crapanzano, Silvia Mostoni, Anne-Laure Bulin, Massimiliano D'Arienzo, Barbara Di Credico, Anna Vedda, Roberto Scotti and Mauro Fasoli



Upon X-ray irradiation, the dense ZnO-related enhancement of energy deposition in TCPF-functionalized SiO<sub>2</sub>/ZnO nanoparticles is the mechanism that cooperates to activate the sensitization of TCPF luminescence (RL).

