

# Nanoscale Advances

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## IN THIS ISSUE

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### Cover

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## REVIEWS

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### Responsible innovation in nanotechnology: response to grand societal challenges

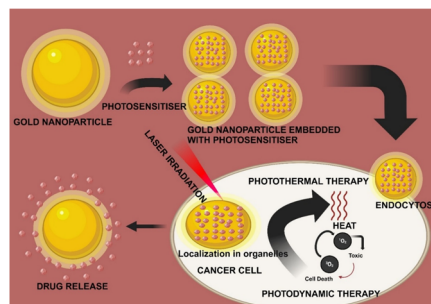
Sanduni Dabare, Sisitha Rajapaksha\* and Imalka Munaweera\*



7440

### Recent advances in gold nanoparticle-based targeted photodynamic and photothermal cancer therapy

Aishat Adejoke Obalola, Heidi Abrahamse and Sathish Sundar Dhillip Kumar\*



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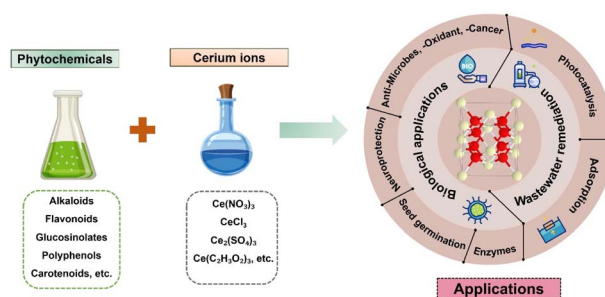
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## REVIEWS

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### Recent advances in biological, photocatalytic and adsorption applications of biosynthesized $\text{CeO}_2$ nanoparticles

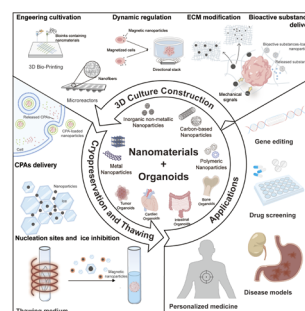
Tan Van Lam, Giang Thanh Tran, Ngoan Thi Thao Nguyen, Ngoc-Kim-Ngan Phan and Duyen Thi Cam Nguyen\*



7483

### Application of nanomaterials in organoid culture and cryopreservation

Wanjuan He, Qinlin Sun, Dan Ge, Yang Liu\* and Bingbing Sun\*

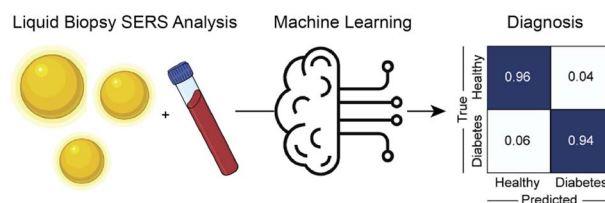


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### Clinical diagnosis of diabetes using machine learning and surface-enhanced Raman spectroscopy liquid biopsy: an exploratory study

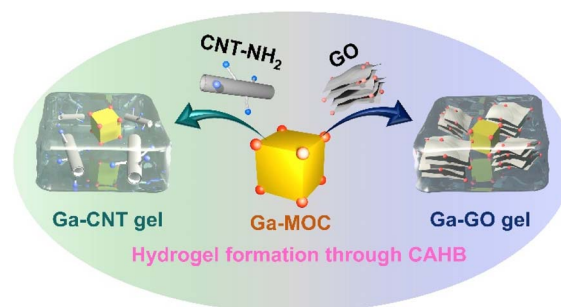
Allah Ditta, Peiying Wu, Rui Zhang, Haq Nawaz, Muhammad Irfan Majeed, Sima Rezvantalab, Sara Mihandoost, Eva Miriam Buhl, Stephan Rütten, Fabian Kiessling, Twan Lammers and Roger M. Pallares\*



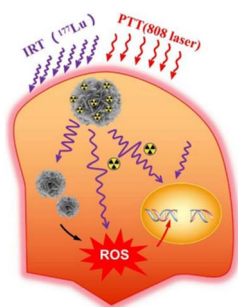
7514

### Bicomponent supramolecular hydrogels derived from a Ga-based metal-organic cube and carbon-based nanomaterials

Dipayan Mandal, Tarak Nath Das and Tapas Kumar Maji\*



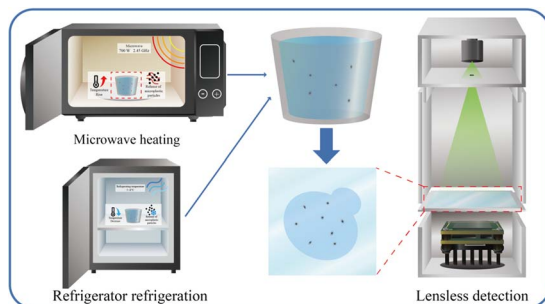
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### Bismuth selenide nanoflowers for internal irradiation combined with photothermal therapy for tumor sensitization and killing

Jiage Gong, Qi Wang, Ruoqi Wang, Jianhua Chen, Jie Gao, Jiangfeng Du\* and Jianguo Li\*

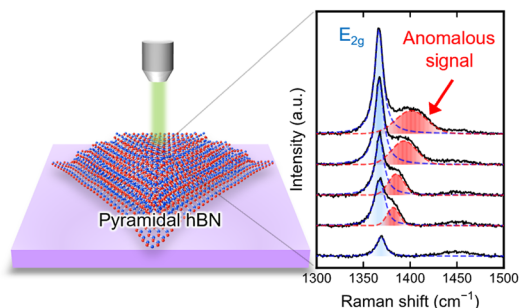
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### Detection of microplastic release into water from plastic containers based on lensless digital holography

Liang Xue, Hao Chen, Hao Zhou, Yusheng Wu, Chunjuan Wei, Youhua Jiang and Hao Yang Cui\*

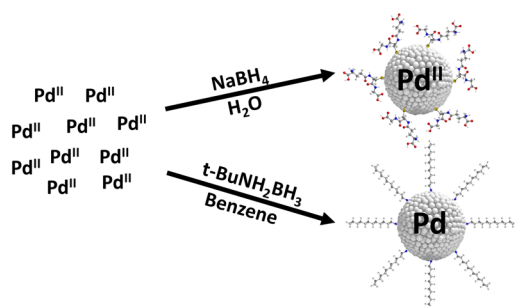
7538



### Anomalous Raman signals in multilayer hexagonal boron nitride grown by chemical vapour deposition on metal foil catalysts

Takara Okonai, Pablo Solís-Fernández, Satoru Fukamachi, Haiming Sun, Yeri Lee, Yung-Chang Lin, Toshiaki Kato, Sunmin Ryu, Kazu Suenaga and Hiroki Ago\*

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### Synthesis and characterization of dodecylamine-capped ultrasmall metallic palladium nanoparticles (2 nm)

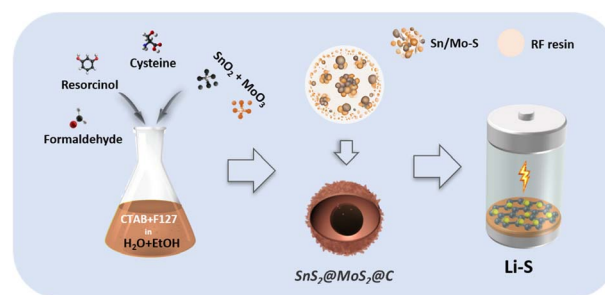
Niklas Kost, Oleg Prymak, Kateryna Loza, Christine Beuck, Peter Bayer, Claudia Weidenthaler, Marc Heggen, Cristiano L. P. Oliveira and Matthias Eppele\*



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## The role of the tin precursor in tuning TMS@carbon yolk-shell nanospheres for enhanced sulfur utilization

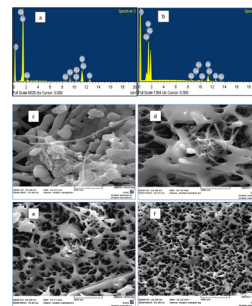
Catherine Sekyerebea Diko, Haodong Shi, Wang Lei, Zichen Zhu, Yining Liu, Maurice Abitonze, Wendolina Martina Micha Obono, Yimin Zhu,\* Yan Yang,\* Zhongshuai Wu and Jian Liu\*



7570

## Boosting the electrical properties of nano-structured (Ga<sub>10</sub>Se<sub>90</sub>)-MWCNT bilayer thin films

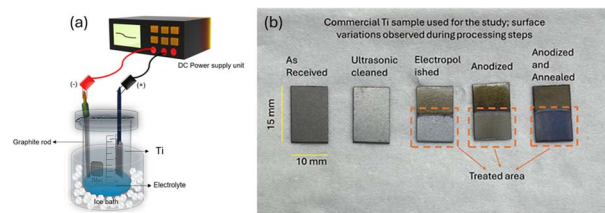
Aarif Hussain Wani, Shakeel Ahmad Khandy,\* Mandeep Singh\* and Shabir Ahmad\*



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## Corrosion behavior of anodized nanoporous TiO<sub>2</sub> films in oxidizing environments: a study on electrochemically engineered titanium surfaces

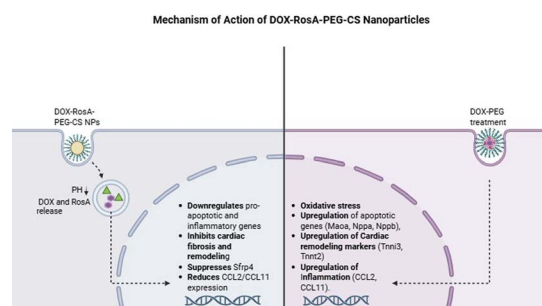
Surya Prakash Gajagouni,\* Imad Barsoum, Sung Oh Cho and Akram Alfantazi



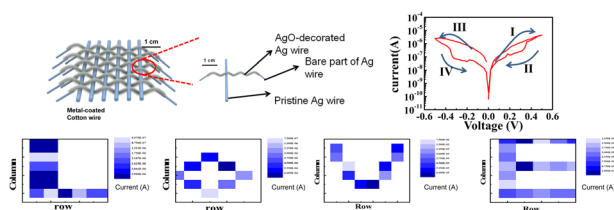
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## Rosmarinic acid attenuates doxorubicin-induced cardiotoxicity: bio-nanocarrier system development and an *in vitro* study using H9c2 rat cardiomyocytes

Afnan Al-Hunaiti,\* Tuqa Abu Thiab, Malek Zihlif, Amin M. S. Abdul Majid, Amer Imraish, Yazan Batarseh and Mohammad Al Shhab



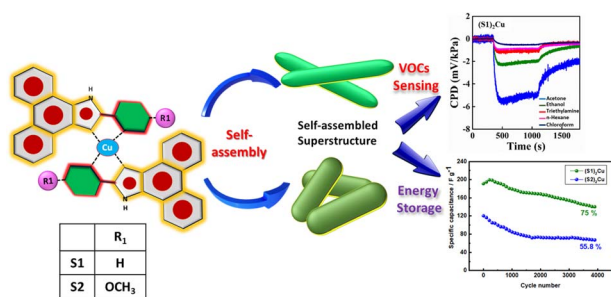
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### Ultra-simplified fabrication of all-silver memristor arrays

Feng Sun, Liqiang Guo,\* Yanfang Meng\* and Guanggui Cheng\*

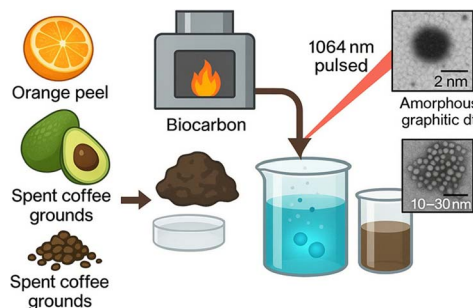
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### Self-assembled $\pi$ -conjugated Cu(II)-phenanthro [9,10-d]imidazole superstructures for VOC sensing and enhanced supercapacitor performance

Mallayasamy Siva, Aneesh Anand Nechikott, Sheethal Sasi, Yuvaraj Sivalingam,\* Prasant Kumar Nayak\* and Priyadip Das\*

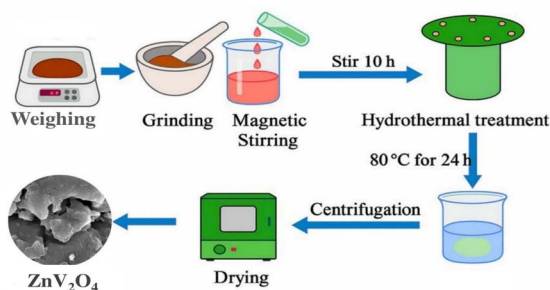
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### From peels and coffee grounds to tunable carbon nanodots: waste-derived biocarbon meets ultrafast laser ablation

Karyme Nava, Kamila González, Víctor Castrejón, Enrique Viguera, Jorge Reyes, Miguel Camacho, Zhiming Wang, Chengjie Wang, Arup Neogi\* and Delfino Reyes\*

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### Synergistic effect of Mo doping on the pseudocapacitive performance of Zn-V-O based TMOs for supercapacitor applications

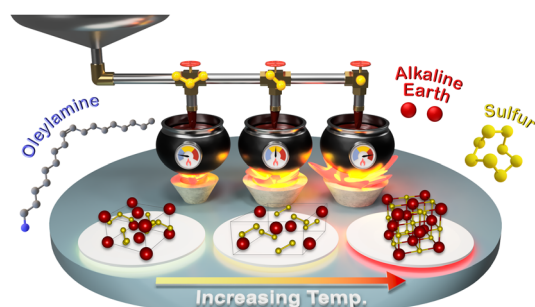
Pankaj Kumar Sharma, Anshuman Sahai, Deepti Maikhuri, Santosh J. Uke, Somya Asthana and Yogesh Kumar\*



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### Solution-phase synthesis and characterization of alkaline earth polysulfides as colloidal nanocrystals

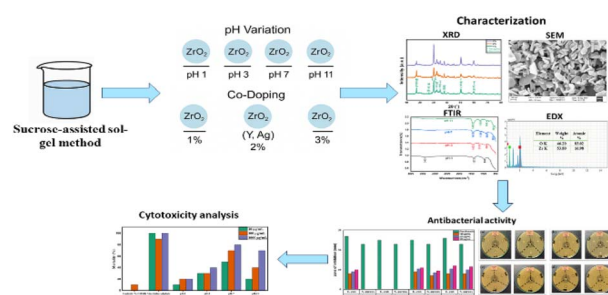
Daniel C. Hayes, Omair Z. Choudhry, Shubhanhsu Agarwal, Kiruba Catherine Vincent, Huamã Belmonte and Rakesh Agrawal\*



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### Effect of pH and (Y, Ag) co-doping on the antibacterial and toxicity properties of ZrO<sub>2</sub> nanoparticles

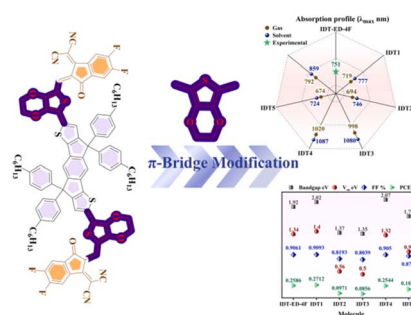
Mehedi Hasan Jasim, Md. Iqbal Hossain, Yasfir Mahmud, A. K. M. Ahsanul Habib\* and Moumita Tasnim Meem



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### Heterocyclic $\pi$ -linkers for reduced energy dissipation in symmetrical IDT-core-based non-fullerene acceptors: a route to efficient organic solar cells

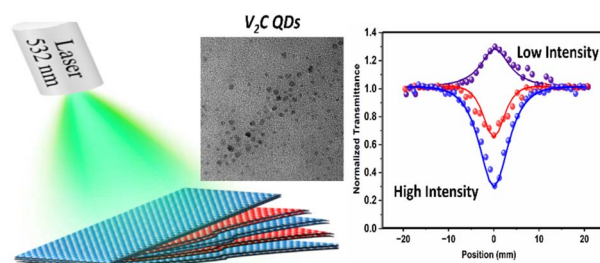
Hina Naeem, Tahani A. Alrebdi, Karrar Hazim Salem, Muhammad Imran, Abdullah Almohammed, Mohamed S. Soliman, Hira Naeem, Muhammad Faizan, Syed Muhammad Kazim Abbas Naqvi\* and Rasheed Ahmad Khera\*



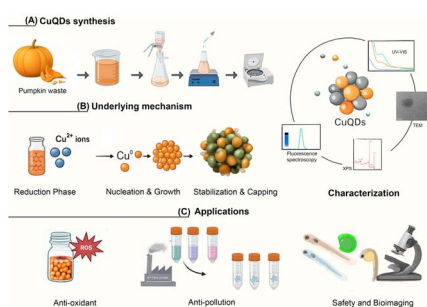
7694

### Green synthesis of V<sub>2</sub>C MXene quantum dots with tunable nonlinear absorption for optical limiting applications

Amrutha Shivappanayaka, Hasana Jahan Elamkulavan, Vari Sivaji Reddy and Chandrasekharan Keloth\*



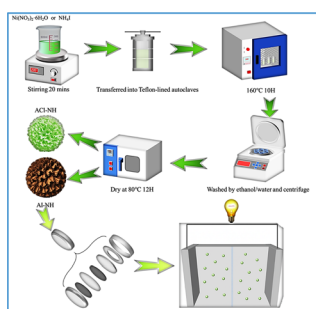
7705



### Pumpkin-waste-derived copper quantum dots: green synthesis, underlying mechanism, and multifunctional applications in catalysis, antioxidants, and bioimaging

Lamis Dayoub,<sup>\*</sup> Xiaoxuan Li, Xuewen Peng, Wajeeha Pervaiz, Shoulei Yan and Yiping Chen<sup>\*</sup>

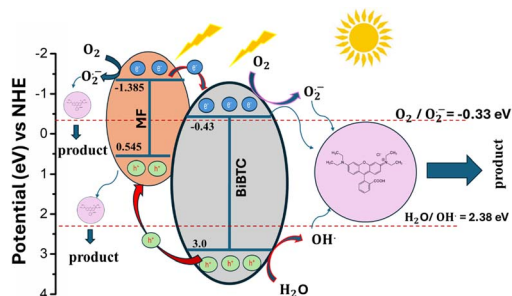
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### Morphology-driven electrochemical properties of nickel-hydroxide and performance of asymmetric button-cell hybrid device

Xiaolong Leng, Jie Zeng, S. V. Prabhakar Vattikuti,<sup>\*</sup> Jaesool Shim,<sup>\*</sup> Thanh Liem Huynh<sup>\*</sup> and Nam Nguyen Dang

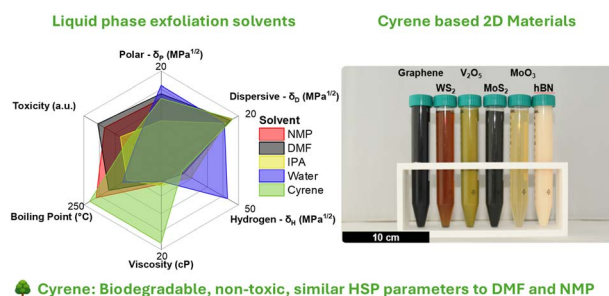
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### Bimetallic $\text{MgFe}_2\text{O}_4\text{@BiBTC}$ hybrids for efficient photocatalytic degradation of rhodamine B

Van Cuong Nguyen,<sup>\*</sup> Ai Le Hoang Pham, Trinh Duy Nguyen, Huynh Dao Thanh Dreaml, Thi Huyen Thoa Pham and Nguyen Thi Mai Tho<sup>\*</sup>

7754



### Green exfoliation of 2D nanomaterials using cyrene as a solvent

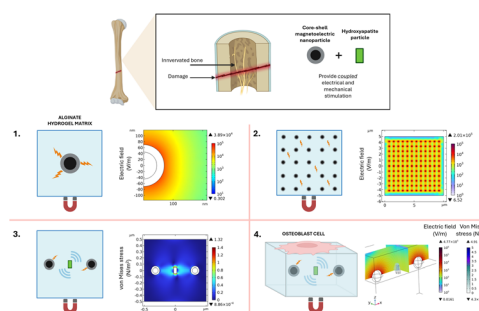
Pedro Moreira, João Mendes, Tomás Calmeiro, Daniela Nunes, David Carvalho, Adam Kelly, Hugo Águas, Elvira Fortunato, Rodrigo Martins, Joana Vaz Pinto, João Coelho<sup>\*</sup> and Emanuel Carlos<sup>\*</sup>



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## Magnetolectric/piezoelectric-based materials for coupled electrical and mechanical stimulation for bone repair: an *in silico* study

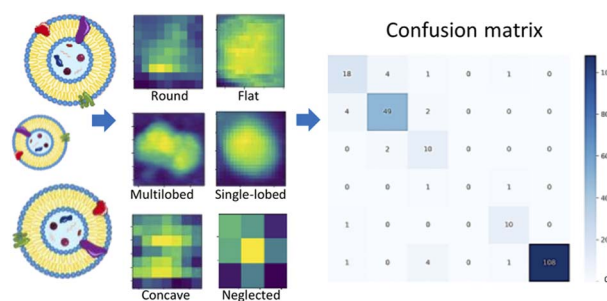
Ilaria Faricelli, Martina Lenzuni,\* Paolo Giannoni, Paolo Ravazzani and Alessandra Marrella



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## Automated morphological classification and quantification of cerebrospinal fluid extracellular vesicles *via* AFM and machine learning

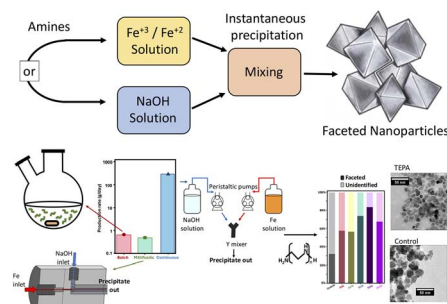
Mario Kurtjak, Vera Tomas, Leon Ivović, David Fabijan, Marko Perčić, Hrvoje Križan, Marin Tota, Lara Saftić Martinović, Janja Tarčuković, Ivan Štajduhar\* and Mladenka Malenica\*



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## Enhanced control and production rates for a green continuous flow synthesis of magnetite nanoparticles: a comparative study of ethylenediamine additives

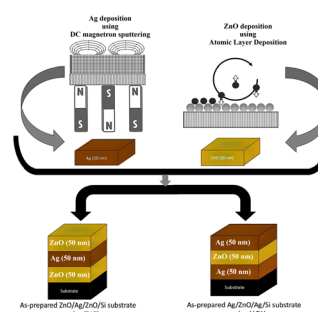
Georgina Zimbitas, Laura Norfolk, Jan Sefcik and Sarah Staniland\*



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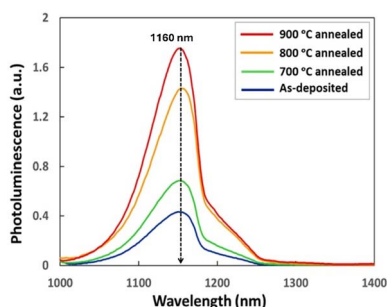
## Comparative insights into structural and optical properties of ZnO/Ag/ZnO and Ag/ZnO/Ag ternary layer thin films

S. S. Fouad, L. I. Soliman, E. Baradács, N. F. Osman, M. Nabil, M. E. Sayed, János J. Tomán, Neeraj Mehta\* and Zoltán Erdélyi



## PAPERS

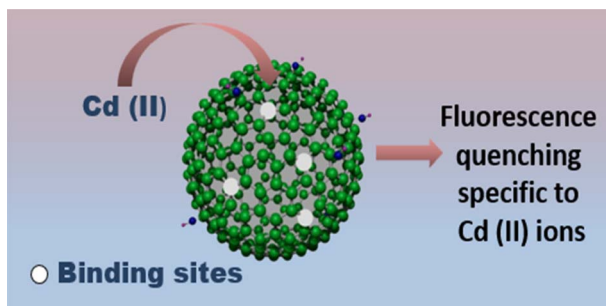
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### Sol-gel silica coatings for enhanced silicon emission: microstructural origins and optical implications

Inas Taha, Sufian Abedrabbo,\* I. A. Qattan, El Mostafa Benchafia, Mohammad Khaled Shakfa and Dalaver H. Anjum\*

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### Ion-imprinted carbon dots: rationally designed fluorescent probes for the detection of selected metal ions from aqueous solutions

Aishwarya Joji Mathew, T. P. Vinod\* and Yamuna Nair

## CORRECTIONS

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### Correction: Targeted treatment of rat AKI induced by rhabdomyolysis using BMSC derived magnetic exosomes and its mechanism

Yuling Chen\* and Shike Hou

7852

### Correction: Rare earth metal (Sm)-doped NiMnO<sub>3</sub> nanostructures for highly competent alkaline oxygen evolution reaction

S. Swathi, R. Yuvakkumar,\* G. Ravi, Abdullah G. Al-Sehemi and Dhayalan Velauthapillai\*



## RETRACTION

7854

**Retraction: A hybrid upconversion nanoprobe for ratiometric detection of aliphatic biogenic amines in aqueous medium**

Shilpi Jaiswal, Subhankar Kundu, Sujoy Bandyopadhyay and Abhijit Patra\*

