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ISSN 2516-0230 CODEN NAADAI 7(23) 7411–7856 (2025)

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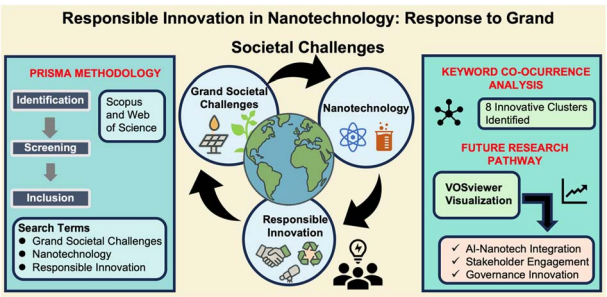
REVIEWS

7424

Responsible innovation in nanotechnology: response to grand societal challenges

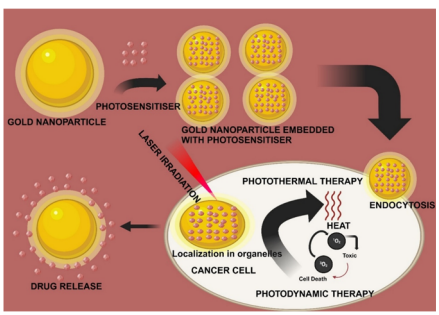
Sanduni Dabare, Sisitha Rajapaksha* and Imalka Munaweera*



7440

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

Aishat Adejoke Obalola, Heidi Abrahamse and Sathish Sundar Dhilip Kumar*



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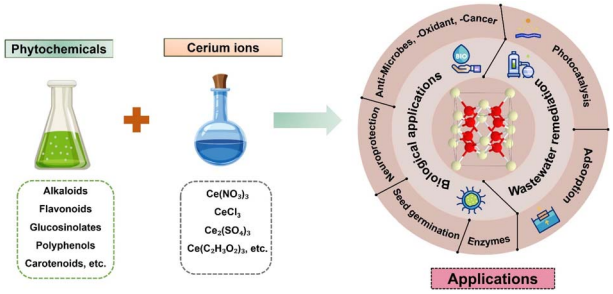
REVIEWS

7459

Recent advances in biological, photocatalytic and adsorption applications of biosynthesized CeO_2 nanoparticles

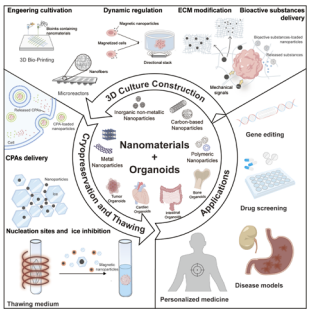
Tan Van Lam, Giang Thanh Tran, Ngoan Thi Thao Nguyen, Ngoc-Kim-Ngan Phan and Duyen Thi Cam Nguyen*



7483

Application of nanomaterials in organoid culture and cryopreservation

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

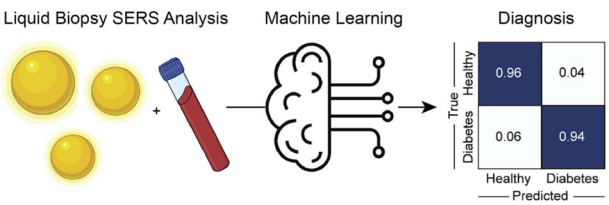


COMMUNICATIONS

7504

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

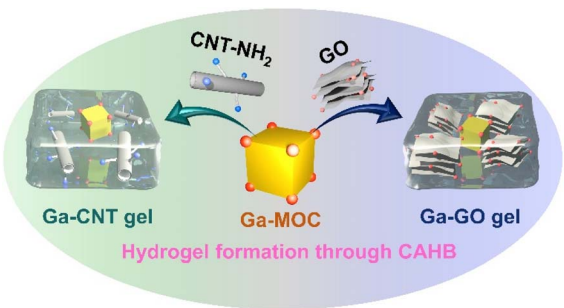
Allah Ditta, Peiying Wu, Rui Zhang, Haq Nawaz, Muhammad Irfan Majeed, Sima Rezvantalab, Sara Mihandoost, Eva Miriam Buhl, Stephan Rütten, Fabian Kiessling, Twan Lammers and Roger M. Pallares*



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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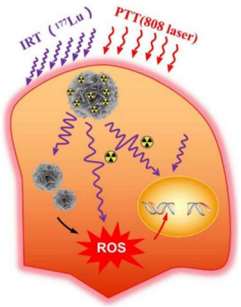
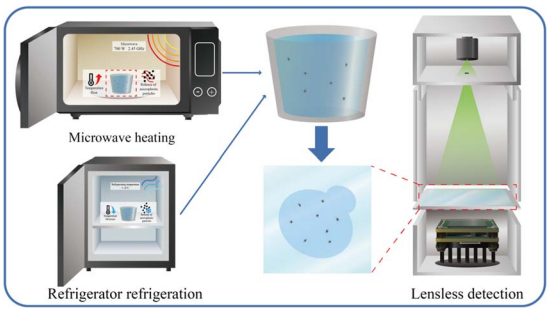
7519



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*

7527



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*

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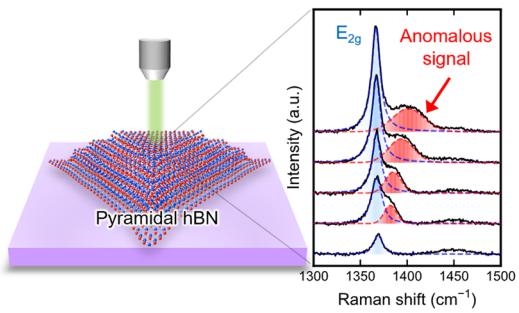
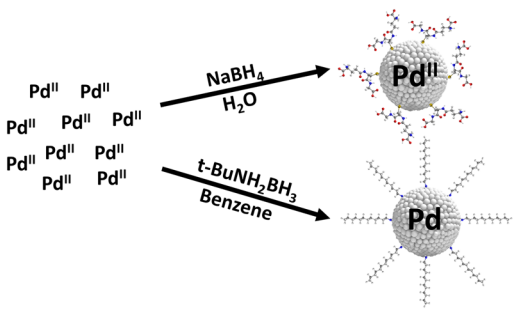


Anomalous Raman signals in multilayer hexagonal boron nitride grown by chemical vapour deposition on metal foil catalysts

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

7547



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 Epple*

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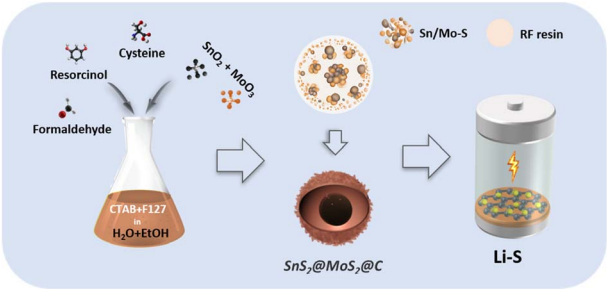
7559

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

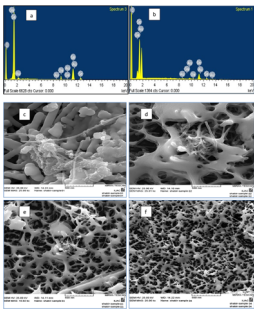
Catherine Sekyerebea Diko, Haodong Shi, Wang Lei, Zichen Zhu, Yining Liu, Maurice Abitonze, Wendolina Martina Micha Obono, Yimin Zhu,* Yan Yang,* Zhongshuai Wu and Jian Liu*



7570

Boosting the electrical properties of nano-structured ($Ga_{10}Se_{90}$)-MWCNT bilayer thin films

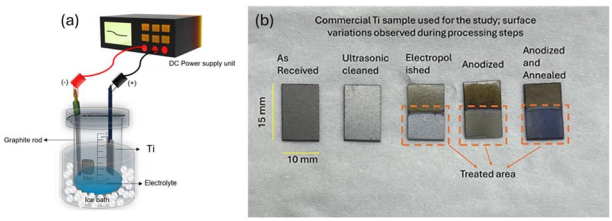
Aarif Hussain Wani, Shakeel Ahmad Khandy,* Mandeep Singh* and Shabir Ahmad*



7579

Corrosion behavior of anodized nanoporous TiO_2 films in oxidizing environments: a study on electrochemically engineered titanium surfaces

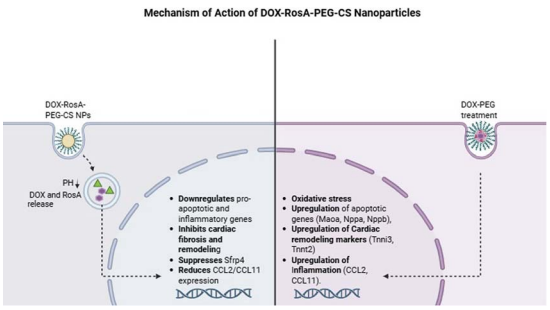
Surya Prakash Gajagouni,* Imad Barsoum, Sung Oh Cho and Akram Alfantazi



7588

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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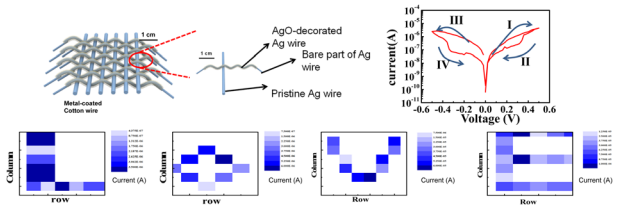
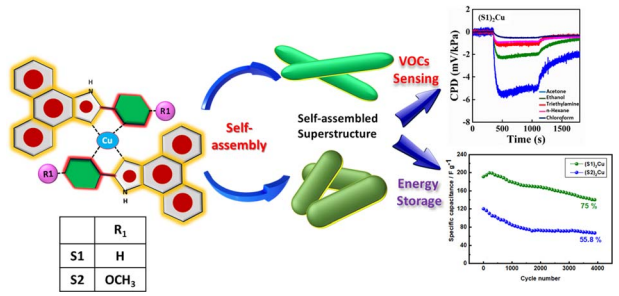


Ultra-simplified fabrication of all-silver memristor arrays

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

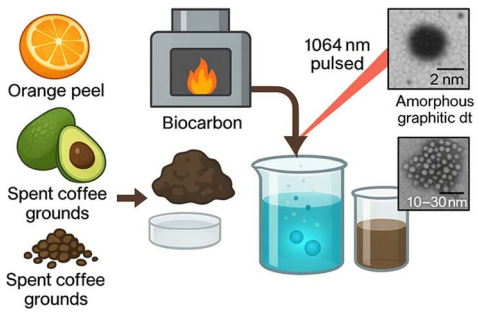
7606



Self-assembled π-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*

7620



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

Karyme Nava, Kamila González, Víctor Castrejón, Enrique Vigueras, 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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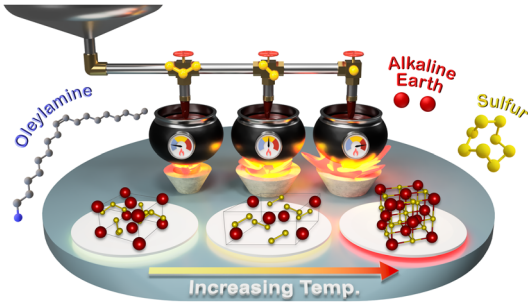
Solution-phase synthesis and characterization of alkaline earth polysulfides as colloidal nanocrystals

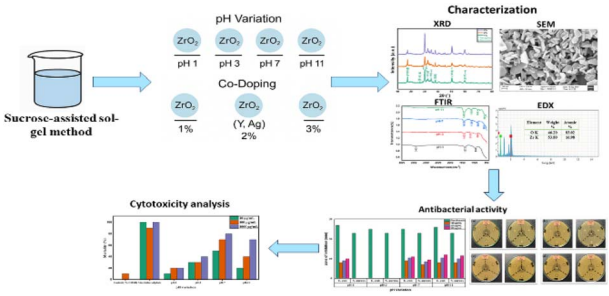
Daniel C. Hayes, Omair Z. Choudhry, Shubhanhsu Agarwal, Kiruba Catherine Vincent, Huamã Belmonte and Rakesh Agrawal*



7663

Effect of pH and (Y, Ag) co-doping on the antibacterial and toxicity properties of ZrO_2 nanoparticles

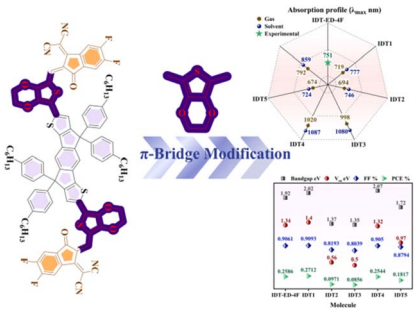
Mehedi Hasan Jasim, Md. Iqbal Hossain, Yasfir Mahmud, A. K. M. Ahsanul Habib* and Moumita Tasnim Meem



7681

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

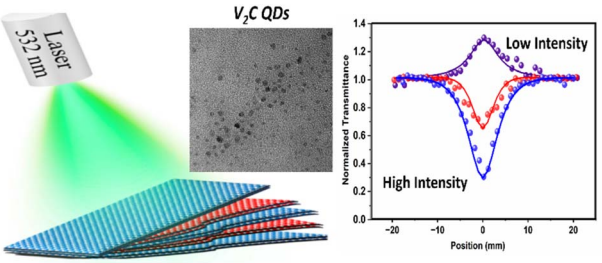
Hina Naeem, Tahani A. Alrebdi, Karrar Hazim Salem, Muhammad Imran, Abdullah Almohammedi, Mohamed S. Soliman, Hira Naeem, Muhammad Faizan, Syed Muhammad Kazim Abbas Naqvi* and Rasheed Ahmad Khera*



7694

Green synthesis of V_2C MXene quantum dots with tunable nonlinear absorption for optical limiting applications

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



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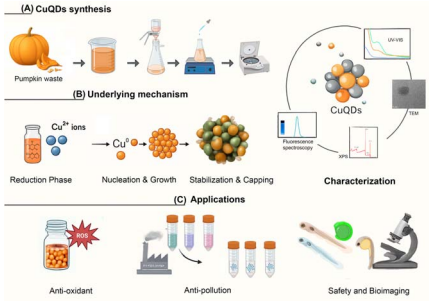
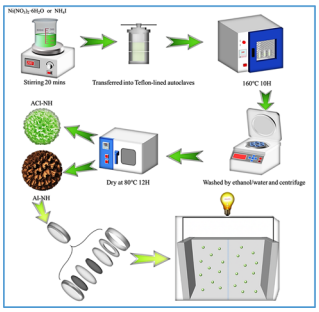


Pumpkin-waste-derived copper quantum dots: green synthesis, underlying mechanism, and multifunctional applications in catalysis, antioxidants, and bioimaging

Lamis Dayoub,* Xiaoxuan Li, Xuewen Peng, Wajeeha Pervaiz, Shoulei Yan and Yiping Chen*

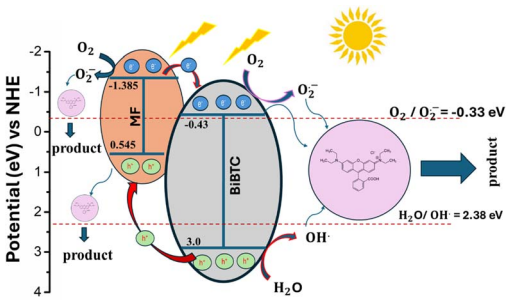
7726



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

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

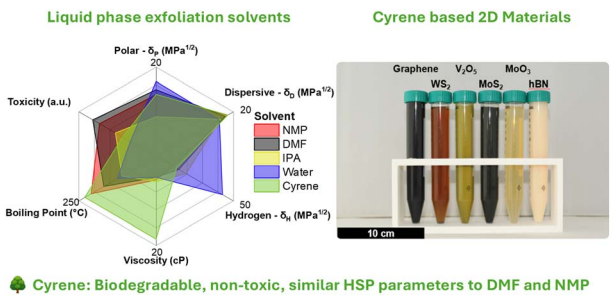
7740



Bimetallic $MgFe_2O_4$@BiBTC hybrids for efficient photocatalytic degradation of rhodamine B

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

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* and Emanuel Carlos*

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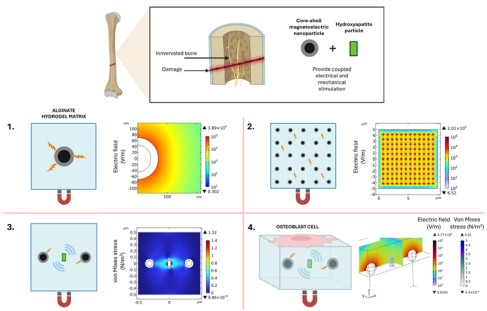
Magnetoelectric/piezoelectric-based materials for coupled electrical and mechanical stimulation for bone repair: an *in silico* study

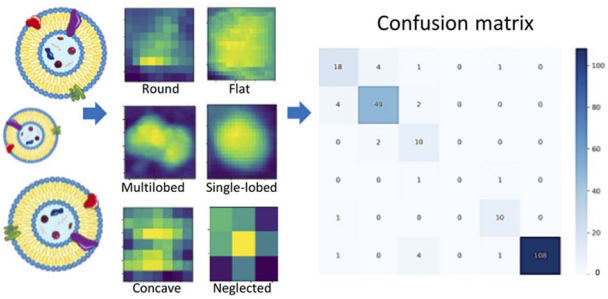
Ilaria Faricelli, Martina Lenzuni,* Paolo Giannoni, Paolo Ravazzani and Alessandra Marrella



7780

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

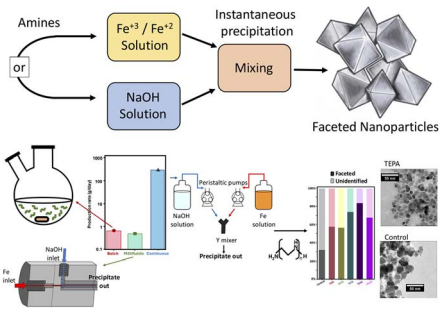
Mario Kurtjak, Vera Tomas, Leon Ivović, David Fabijan, Marko Perčić, Hrvoje Križan, Marin Tota, Lara Saftić Martinović, Janja Tarčuković, Ivan Štajduhar* and Mladenka Malenica*



7798

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

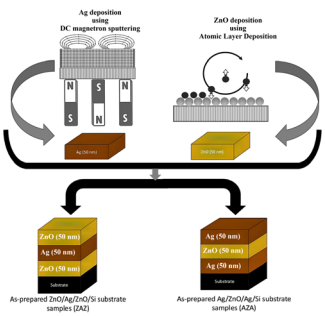
Georgina Zimbitas, Laura Norfolk, Jan Sefcik and Sarah Staniland*



7811

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



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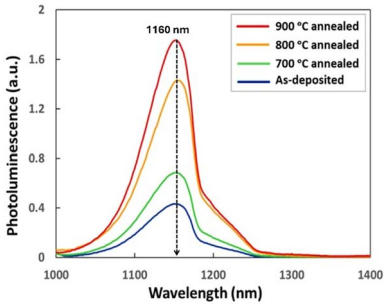
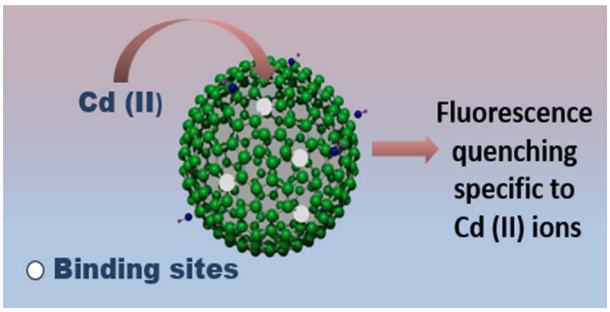


Sol–gel silica coatings for enhanced silicon emission: microstructural origins and optical implications

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

7836



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

7849

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 $NiMnO_3$ nanostructures for highly competent alkaline oxygen evolution reaction

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

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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*

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