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Cover
See Yusaku Abe, Yu Matsuda *et al.*, pp. 728–734. Image reproduced by permission of Yu Matsuda from *Nanoscale Adv.*, 2025, **7**, 728.

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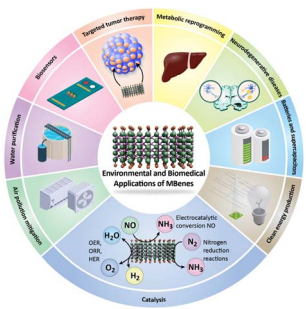
Environmental and biomedical applications of 2D transition metal borides (MBenes): recent advancements

Siavash Iravani,* Atefeh Zarepour, Arezoo Khosravi and Ali Zarrabi*



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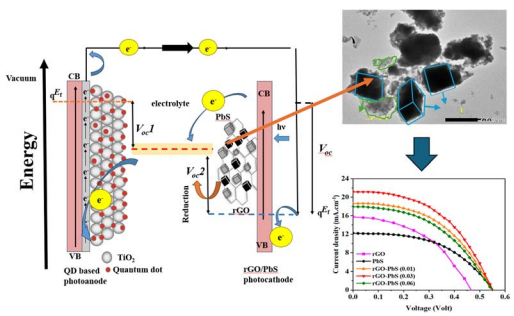
Efficient counter electrode for quantum dot sensitized solar cells using p-type PbS@reduced graphene oxide composite

Huu Phuc Dang,* Ha Thanh Tung, Nguyen Thi My Hanh, Nguyen Thuy Kieu Duyen, Vo Thi Ngoc Thuy, Nguyen Thi Hong Anh and Le Van Hieu



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MINIREVIEW

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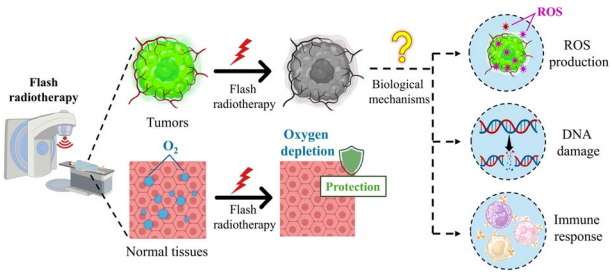
FLASH radiotherapy: mechanisms, nanotherapeutic strategy and future development

Yan Wang, Huifang Wang, Jiawei Hu, Jingjing Chai, Jiajie Luan, Jie Li* and Qingwen Xu*



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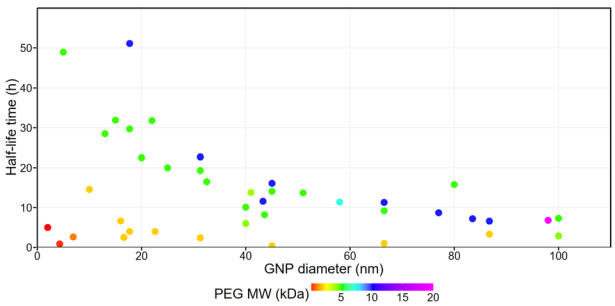
Optimal size and PEG coating of gold nanoparticles for prolonged blood circulation: a statistical analysis of published data

Dmitry Nevozhay,* Ronald Rauch, Zhongya Wang and Konstantin V. Sokolov*



PAPERS

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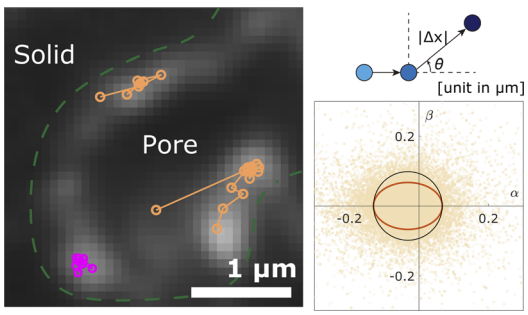
Single-particle tracking of polymer aggregates inside disordered porous media

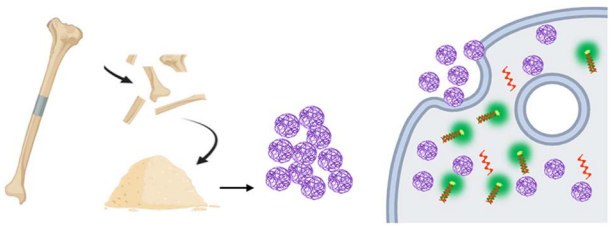
Yusaku Abe,* Naoki Tomioka and Yu Matsuda*



735

Bone-derived nanoparticles (BNPs) enhance osteogenic differentiation *via* Notch signaling

Austin Stellpflug, Justin Caron, Samantha Fasciano, Bo Wang* and Shue Wang*



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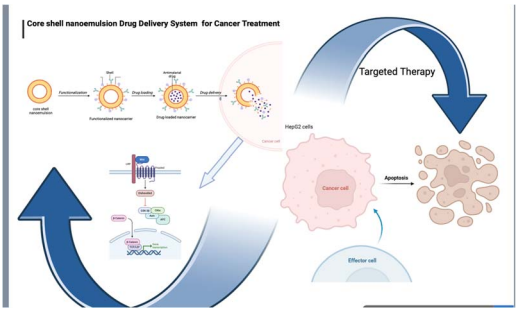

***In vitro* β-catenin attenuation by a mefloquine-loaded core–shell nano emulsion strategy to suppress liver cancer cells**

Priyadarshini Mohapatra and Natarajan Chandrasekaran*

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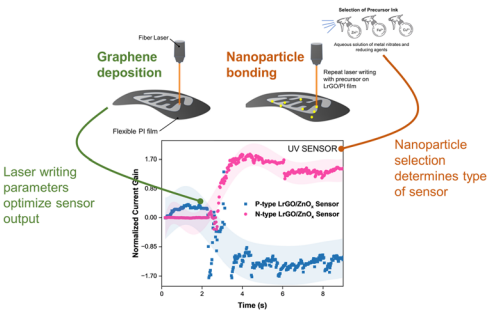

Laser writing of metal-oxide doped graphene films for tunable sensor applications

Shasvat Rathod, Monika Snowdon, Matthew Peres Tino and Peng Peng*

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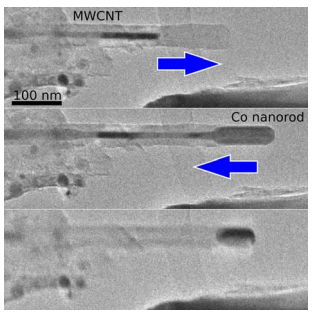

Electromigration-driven linear actuator operations of Co nanorods inside and outside multi-walled carbon nanotubes with stroke of tens of nanometers

Shogo Matsuyama and Hideo Kohno*

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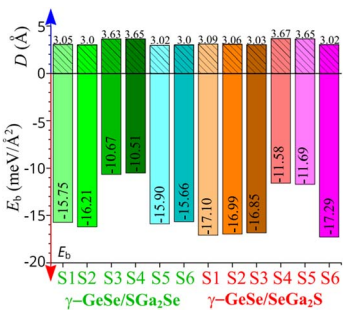

Stacking-dependent and electric field-driven electronic properties and band alignment transitions in γ-GeSe/Ga_2SSe heterostructures: a first-principles study

Nguyen V. Vinh, D. V. Lu and K. D. Pham*

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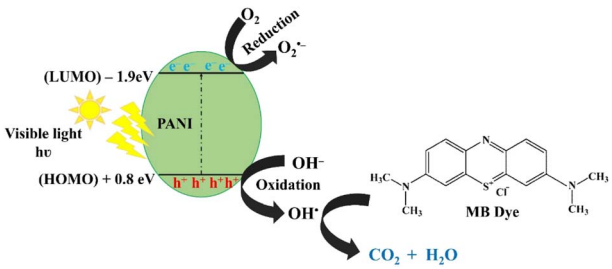
Enhanced photocatalytic performance of polyaniline nanoparticles for efficient dye degradation under simulated sunlight

Chinh Van Tran, Duy Van Lai, Thu Minh Nguyen, Xuan Quynh Thi Le, Hanh Hong Nguyen, Nguyet Thi Minh Quan, Tung Thanh Nguyen and Duong Duc La*



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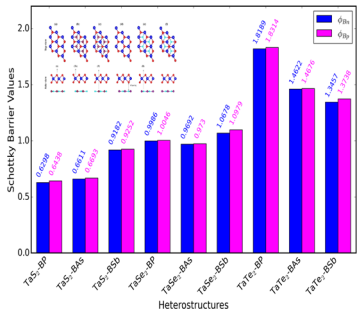
Layer-dependent Schottky contact at TaX_2–BY (X = S, Se, Te; Y = P, As, Sb) van der Waals interfaces

Israr Ul Haq, A. Mustaqeem, B. Ali, M. Umair Ashraf, U. Khan, Muhammad Idrees, M. Shafiq, Yousef Mohammed Alanazi and B. Amin*



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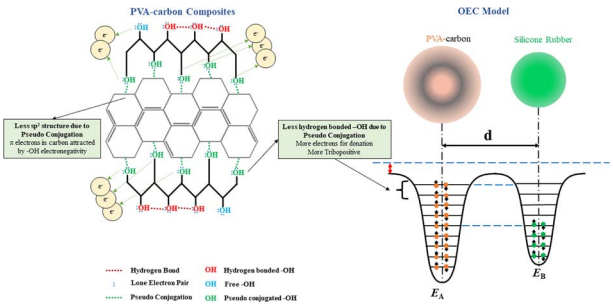
Enhancing the tribopositive characteristics of polyvinyl alcohol (PVA)-carbon composites by optimizing the PVA-carbon interaction with various carbon fillers

Jian Ye Cheong, Jason Soon Chye Koay, Sanjeev Raj Gopal, Thamil Selvi Velayutham* and Wee Chen Gan*



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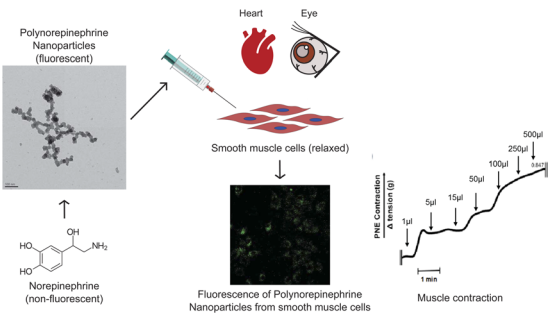
Polynorepinephrine nanoparticles activate vascular smooth muscle alpha-1 adrenergic receptors

Vinayaraj Ozhukil Kollath, Vivek Krishna Pulakazhi Venu, Mahmoud Saifeddine, Koichiro Mihara, Simon A. Hirota, Morley D. Hollenberg* and Kunal Karan*



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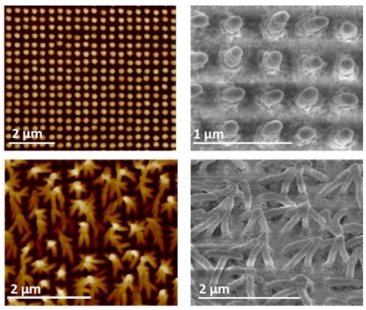

Toward nanofabrication of SERS substrates with two-photon polymerization

Tatevik Chalyan,* Mehdi Feizpour, Qing Liu, Koen Vanmol, Núria Solerdelcoll, Gen Takebe, Hugo Thienpont and Heidi Ottevaere

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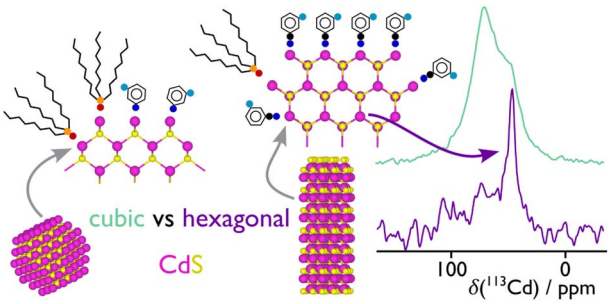

Passivation, phase, and morphology control of CdS nanocrystals probed using fluorinated aromatic amines and solid-state NMR spectroscopy

Mark A. Buckingham, Robert Crawford, Yi Li, Ran Eitan Abutbul, Bing Han, Kerry Hazledine, Sarah Cartmell, Alex Walton, Alex S. Eggeman, David J. Lewis* and Daniel Lee*

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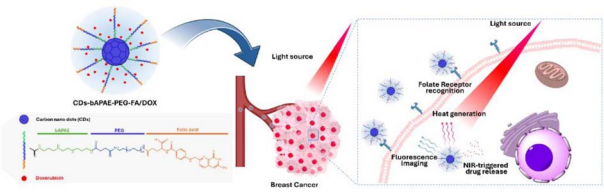

Targeted NIR-triggered doxorubicin release using carbon dots–poly(ethylene glycol)–folate conjugates for breast cancer treatment

Paola Varvarà, Nicolò Mauro* and Gennara Cavallaro

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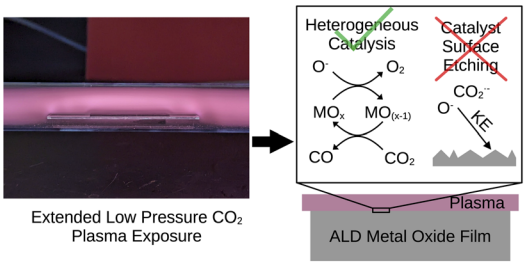

Characterizing the stability of ultra-thin metal oxide catalyst films in non-thermal plasma CO_2 reduction reactions

Samuel K. Conlin, Joseph Joel Muhanga, David N. Parette and Robert H. Coridan*

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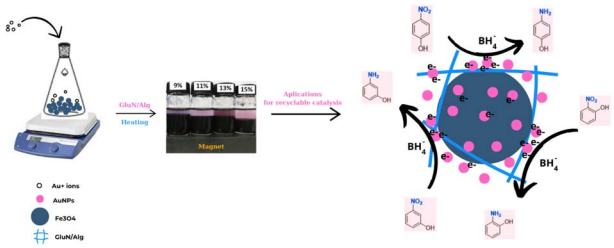
***In situ* synthesis of gold nanoparticles embedded in a magnetic nanocomposite of glucosamine/alginate for enhancing recyclable catalysis performance of nitrophenol reduction**

Le-Kim-Thuy Nguyen, Manh-Huy Do, Phuoc-Dat Duong, Thi-My-Duyen Tran, Thi-Quynh-Nhu Ngo, Xuan -Thom Nguyen, Van-Dung Le, Cao-Hien Nguyen, Radek Fajgar and Thanh-Danh Nguyen*



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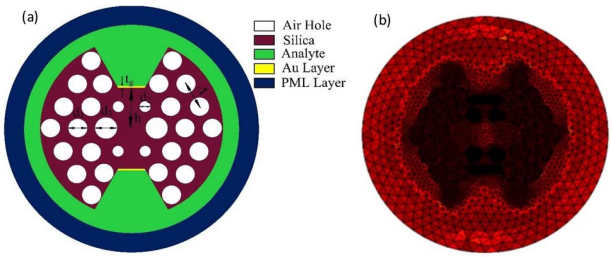
A highly optimized and sensitive bowtie shape-based SPR biosensor for different analyte detection

Md Abu Huraiya,* Sankar Ganesh Ramaraj,* Sk. Md. Shahadat Hossain, Kisalaya Chakrabarti, Hitoshi Tabata and S. M. Abdur Razzak



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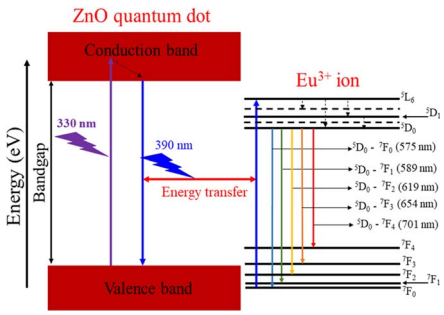
Eu^{3+}-doped ZnO quantum dots: structure, vibration characteristics, optical properties, and energy transfer process

T. T. T. Huong,* N. T. Sa, N. T. M. Thuy, P. V. Hao, N. H. Thao, N. T. Hien and N. X. Ca*