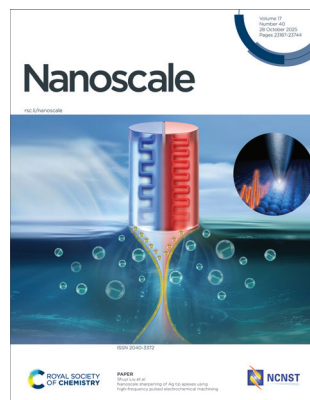


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ISSN 2040-3372 CODEN NANOHL 17(40) 23187–23744 (2025)



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See Shuyi Liu *et al.*, pp. 23323–23328.

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Inside cover

See Eun-Kyung Lim, Seungjoo Haam *et al.*, pp. 23329–23342.

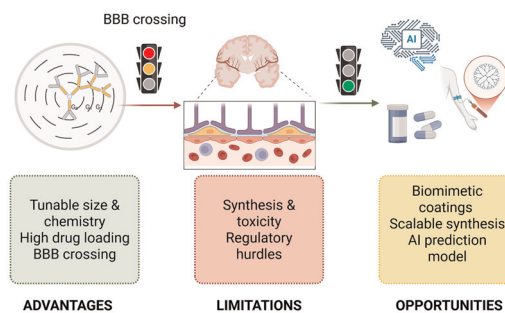
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REVIEWS

23202

Crossing the blood–brain barrier: advances in dendrimer-based nanocarriers for central nervous system delivery

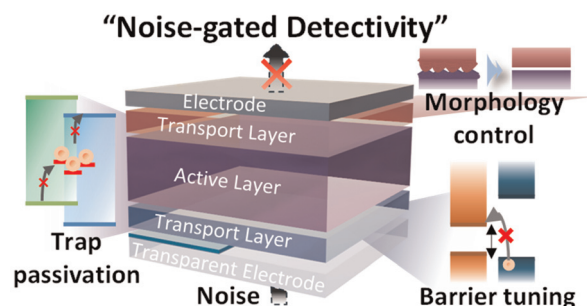
Priyanshu Bharadwaj, V. Gaëlle Roullin* and Jeanne Leblond Chain*



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Specific detectivity-oriented low-noise management in organic photodetectors

Seungjae Hong, Tae Hyuk Kim, Seunghyun Oh and Jae Won Shim*



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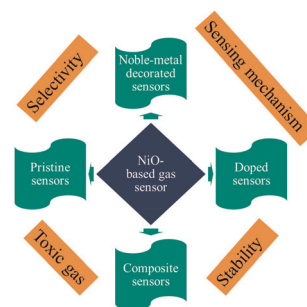


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23247

Recent progress in nickel oxide-based chemiresistive toxic-gas sensors

Ankur Gupta, Hyoun Woo Kim,* Sang Sub Kim,*
Ali Mirzai, Santosha K. Dwivedy and
Ravindra Kumar Jha*

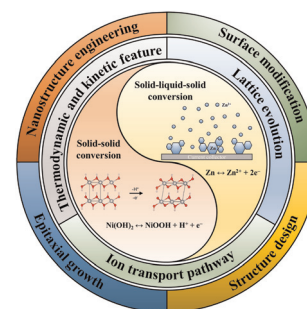


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Electrode reaction mechanisms in aqueous batteries: a comparative study and perspective on solid–solid versus solid–liquid–solid conversions

Yaoming Leng, Zhongxi Zhao,* Jianwen Yu,
Jiangfeng Huang, Junshuo Lian and Peng Tan*

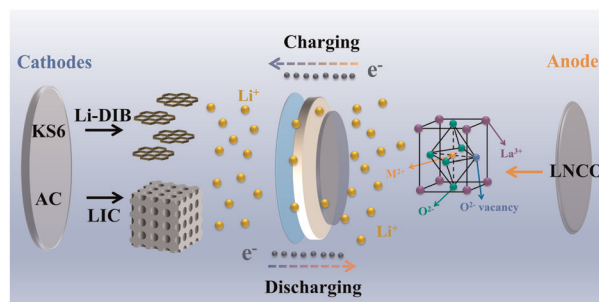


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Exploring the insertion mechanism of pseudocapacitive perovskite oxide La–Ni–Co–O anode materials and the application to Li-ion capacitor and Li-based dual ion batteries

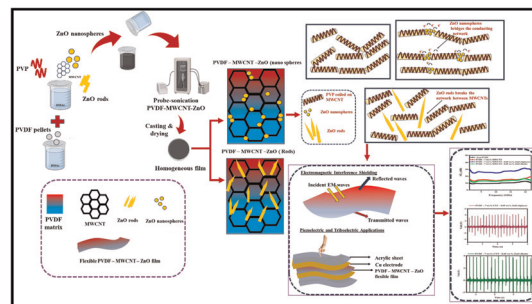
Yi Li, Yuxi Huang, Rui Ding,* Caini Tan, Jian Guo,
Yiqing Lu, Zhiqiang Chen, Yibo Zhang and Runzhi Xu



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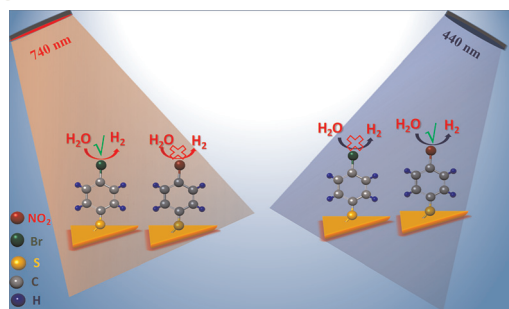
Morphology-driven multifunctionality: tailoring ZnO for enhanced EMI shielding and energy harvesting in PVDF/MWCNT nanocomposites

Aleena Sabu, Pooja U., Meera B. Nair, Dinesh K. Shukla,
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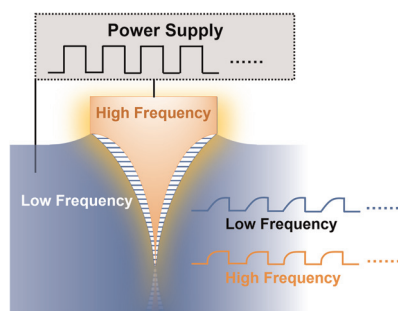


Controlling plasmonic charge carrier flow at a nanoparticle–molecule interface using ligand chemistry

Gayatri Joshi, Kalyani Patrikar, Uditi Singhal, Anirban Mondal* and Saumyakanti Khatua*

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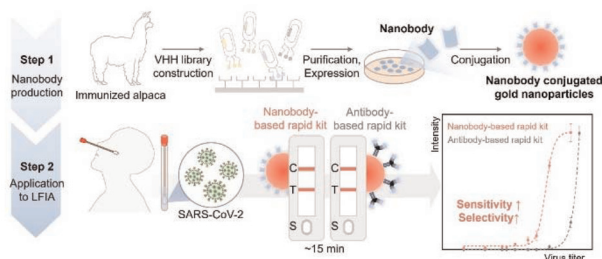
23323



Nanoscale sharpening of Ag tip apexes using high-frequency pulsed electrochemical machining

Yongkai Xiao, Wenao Liao, Honghua Ma, Yingshuang Fu and Shuyi Liu*

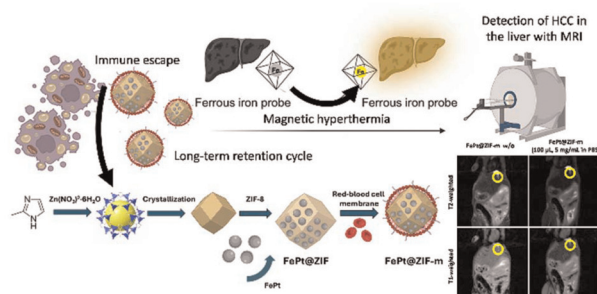
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Nanobody engineering for enhanced-sensitivity rapid COVID-19 tests

Eunji Jeong, Seo Yeong Oh, Seong Uk Son, Sojeong Lee, Ryunhyung Kim, Jaewook Lim, Sunjoo Kim, Taejoon Kang, Juyeon Jung, Seung-Yong Seong, In-Young Jang, Jong Hyun Kim, Eunhee Jang, Hyoung Hwa Jeong, Eun-Kyung Lim* and Seungjoo Haam*

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Biomimetic red blood cell membrane-coated FePt metal–organic framework nanoparticles: a multifunctional theranostic system for enhanced MRI and targeted therapy

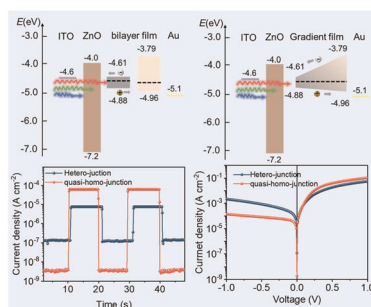
Ming-Hsien Chan,* Ru-En Zhuang, Da-Hua Wei* and Michael Hsiao



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Gradient bandgap engineering for performance enhancement in PbSe photodetectors

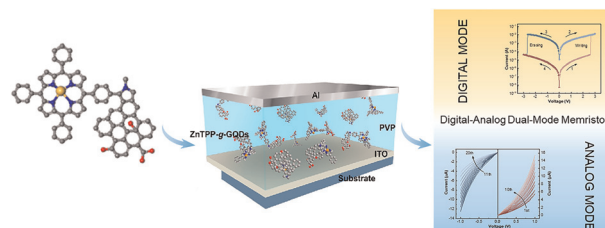
Ling Lin, Jinian Hao, Ruisi Gao, Liang Li, Xinyue Wang, Shenglin Jiang, Guangzu Zhang and Kanghua Li*



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Graphene quantum dots covalently functionalized with zinc porphyrin for digital-analog dual-mode memristors

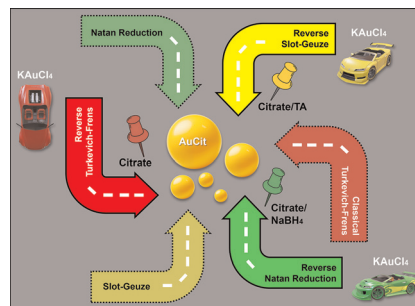
Fengrui Duan, Fei Fan,* Tianyue Huang, Wei Li, Sai Sun* and Bin Zhang*



23373

Comparative analysis of synthesis techniques for citrate-capped gold nanoparticles: insights into optimized wet-chemical approaches for controlled morphology and stability

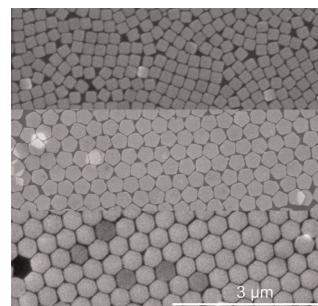
Sarah Salloum, Juliana R  ther, Z  beyde Celik and Christoph Janiak*



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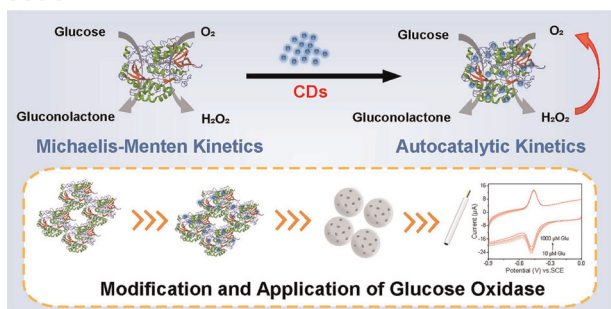
Shape effects on the 2D self-assembly of lithographically fabricated nanoparticles

Yi-Yu Cai, Zeyu Gu, Shengsong Yang, Christopher B. Murray and Cherie R. Kagan*



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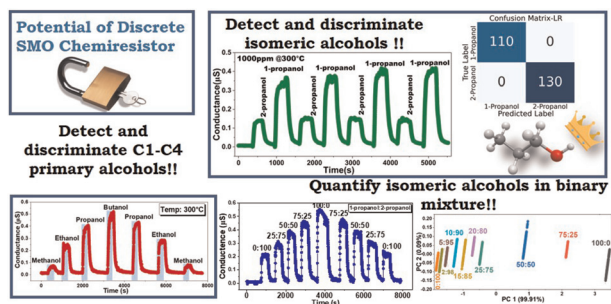
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Carbon dots endow glucose oxidase with autocatalytic features and anti-poisoning ability

Tao Hu, Mengling Zhang,* Wenwen Li, Huiwen Shu, Jiahui Dong, Hao Li, Yang Liu,* Hui Huang* and Zhenhui Kang*

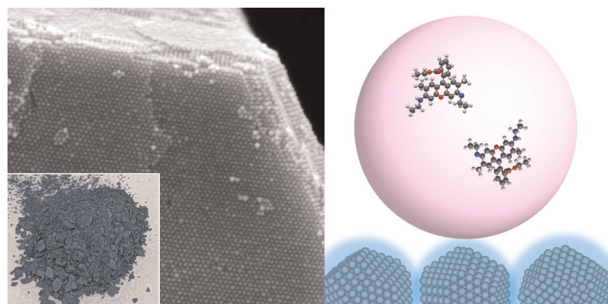
23403



Unveiling the potential of a discrete titania chemiresistor: broad-spectrum sensing of C1–C4 alcohols and precise C3 isomer discrimination in binary mixtures

S. Paine, A. Bera, A. Choudhury* and K. Mukherjee*

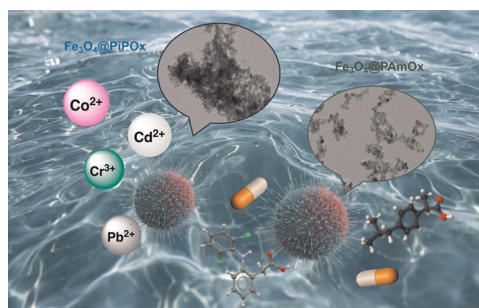
23416



Direct synthesis of three-dimensional Ag nanocrystal superlattices and their superhydrophobic films for a potential surface-enhanced Raman scattering substrate

Lingkai Zhu, Nao Nagai, Yan Xia, Mitsuki Muto, Toshiharu Teranishi* and Masaki Saruyama*

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Polyoxazoline functionalized magnetic spinel iron oxide nanoparticles for efficient removal of pharmaceuticals and heavy metal ions from water

Agnese Ricci,* Luca Stefanuto, Sara Del Galdo, Simone Pepi, Valerio Graziani, Stefano Casciardi, Sawssen Slimani, Gaspare Varvaro, Davide Peddis, Luca Tortora, Barbara Capone, Claudio Rossi, Daniela Tofani, Giancarlo Masci* and Tecla Gasperi*

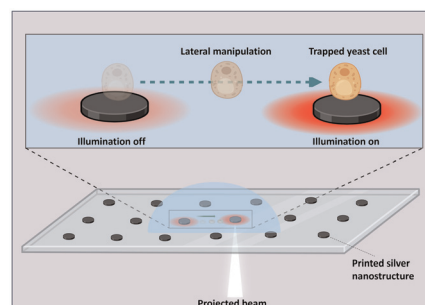


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White-light-driven plasmonic nanoparticle printing for opto-thermal manipulation and SERS application

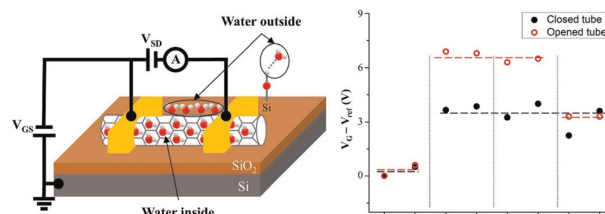
Shreyas Mysuru Shivalingegowda and Sajan D. George*



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Electronic fingerprints of confined and adsorbed water in SWCNTs

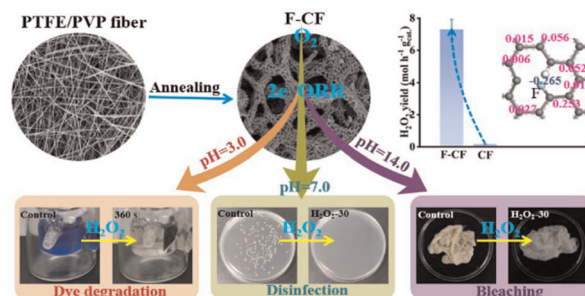
Said Pashayev, Romain Lhermerout, Christophe Roblin, Eric Alibert, Remi Jelinek, Nicolas Izard, Rasim Jabbarov, Francois Henn and Adrien Noury*



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Simultaneously modulating the morphology and electronic structure of carbon-fiber: a strategy for constructing an efficient electrocatalyst for the *in situ* production of H_2O_2 over a wide pH

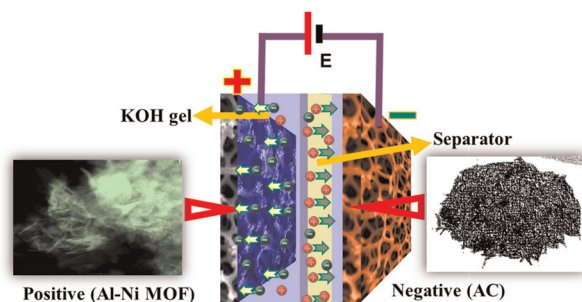
Lizhi Liu, Qing Xiong, Caixia Li, Chenglu Yan, Huaqiao Peng, Huiyong Wang, Juan Du,* Baozhan Zheng* and Yong Guo*



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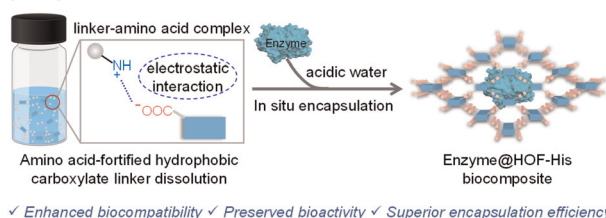
Durable and efficient BTC-assisted 2D/0D Al-Ni-MOF nanostructures for modern electrochemical energy systems

Xiaolong Leng, S. V. Prabhakar Vattikuti, Mohan Rao Tamtam,* Jaesool Shim,* Huynh Thanh Liem* and Nam Nguyen Dang



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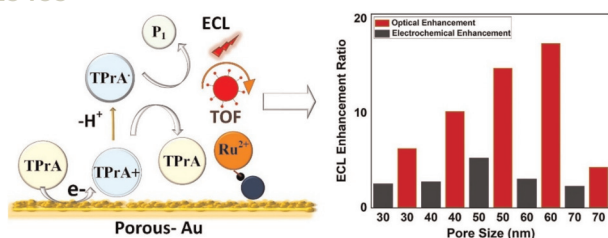
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An amino acid-fortified *in situ* encapsulation strategy for constructing highly active enzyme@HOF biocomposites

Qiaoyi Cen, Huairou Zhu, Jiayin Huang, Dan Yan, Ningyi Zhong, Xinyuan Zhu, Fang Zhu, Guosheng Chen,* Wei Yi,* Siming Huang* and Gangfeng Ouyang

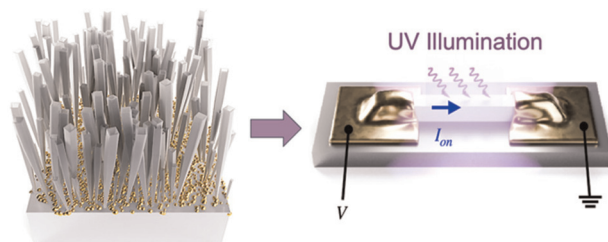
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Surface-enhanced electrochemiluminescence with mesoporous gold: understanding the electrochemical and optical effects

Abubakkar Khan, Xuhua Xu, Jiawei Shen and Xiaoyu Cheng*

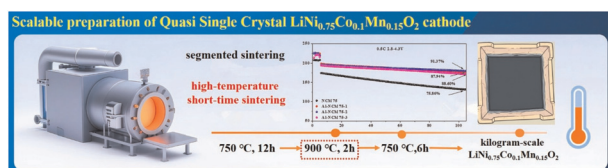
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Combined role of H₂O and O₂ adsorbates on the persistent UV photoconductivity of perfectly square SnO₂ nanotubes

Ryan L. Adams, Maxime Le Ster, Hiep N. Tran, Jim G. Partridge, Nicola Gaston, Tim D. Veal, Roger J. Reeves and Martin W. Allen*

23503



Lattice stability-induced enhanced performance of a quasi-single-crystal LiNi_{0.75}Co_{0.1}Mn_{0.15}O₂ cathode for lithium-ion batteries

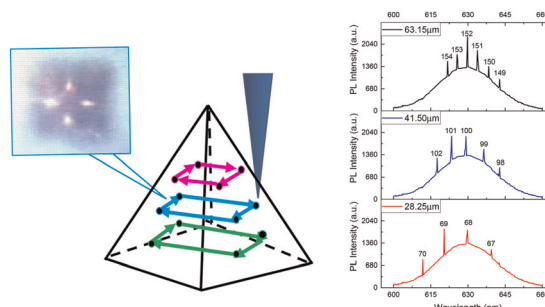
Peng Du, Fuxin Hou, Mengzhen Wang, Xinyan Du, Mingxue Feng and Chengkai Yang*



23511

A convenient strategy for tunable quasi-WGM lasing in pyramid structures enabled by Förster resonance energy transfer

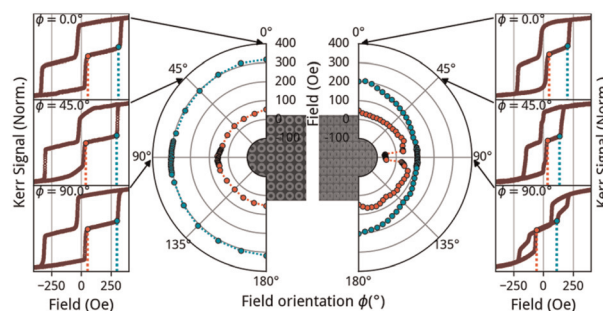
Tsung Chi Lee, Hsia Yu Lin, Yu Chuan Tsao, Guan Zhang Lu, Ya-Ping Hsieh and Yang Fang Chen*



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Interplay of geometry and magnetic coupling in ferromagnetic nanorings

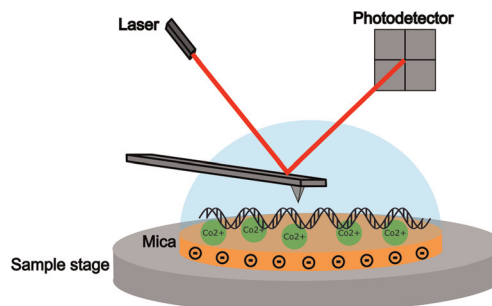
Szymon P. Oramus, Julius de Rojas, Jay R. Scott, Ben Nicholson, Del Atkinson and Adekunle O. Adeyeye*



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Co²⁺-mediated adsorption facilitates atomic force microscopy of DNA molecules at double-helix resolution

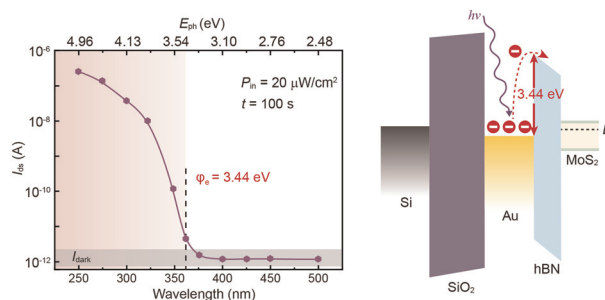
Mark Pailing, Taiana Maia de Oliveira, Maria M. Flocco and Bart W. Hoogenboom*



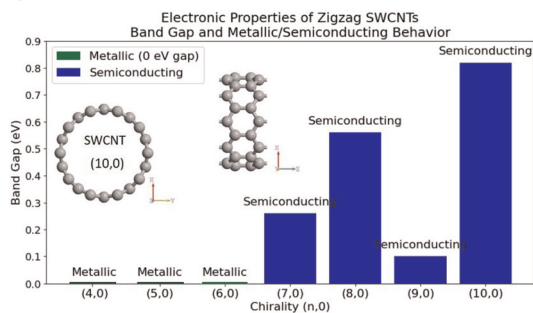
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Highly sensitive and spectrally tunable UV photodetectors via interface barrier engineering in floating-gate transistors

Bangchi Huang, Xiang Li, Jianlin Shi, Jinhan Hu, Zhipeng Zhong, YeZhao Zhuang, Junju Zhang, Wu Shi, Xiaosheng Fang, Hai Huang,* Jianlu Wang and Junhao Chu



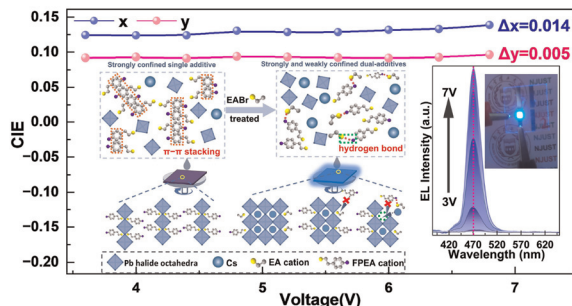
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Device-level modelling for predicting the total density of states of single-walled CNTs with increasing chirality: a fusion of *ab initio* modeling and a machine learning framework

Vusala Nabi Jafarova,* Debarati Dey Roy, Khayala Ajdar Hasanova, Mihaela Luminita Barhalescu and Ionut-Cristian Scurtu

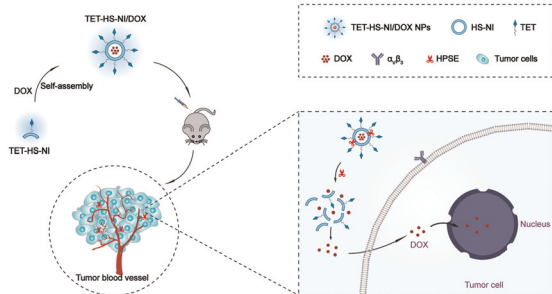
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Dual additives balance phase distribution in all-bromide quasi-2D perovskites for spectrally stable pure-blue light-emitting diodes

Xingle Shang, Wenjun Yuan, Haoqi Li, Yifei Wang, Kun Zhang, Xinrui Chen, Zezhou Jiao, Hengyang Xiang* and Haibo Zeng*

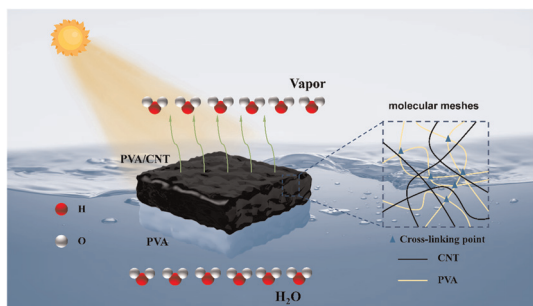
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Heparanase-responsive nanomaterial for anaplastic thyroid cancer chemotherapy

Xiaofen Yi, Xiangyu Jin, Huihui Yan, Tong Xu, Lu Chen, Dingyi Yu, Kai Wang and Ping Huang*

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CNT/PVA-PVA double-layer hydrogel interfacial evaporators for stable solar desalination and water purification

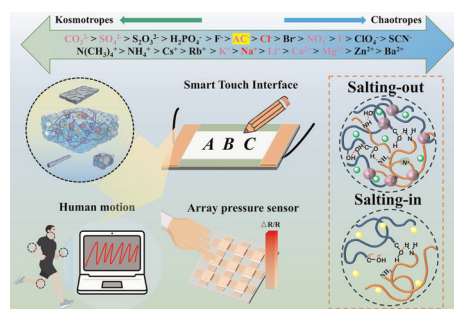
Jingyi Wang, Yongqian Cui, Xinxin Liang, Yuqing Chen, Shuochen Wang, Xin Huang, Nurxat Nuraje and Chuanyi Wang*



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Dynamically *in situ* tunable, highly robust and sensitive ionically conductive hydrogels enabled by the Hofmeister effect for potential sensor arrays

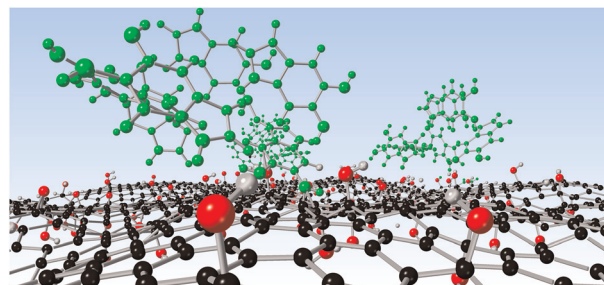
Xiang Di,* Yanghang Zhong, Yi Wang, Yufei Zhang, Jinduo Xue, Xuzhe Huang, Keming Qin, Xuefeng Gao and Chungang Yuan*



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Nanoscale imaging and atomic vibrations of eumelanin superstructures modulated by functionalized micronized graphene oxide

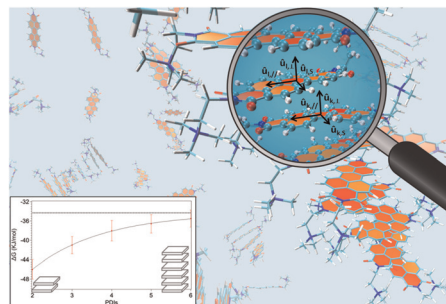
Roberto Matassa,* Sara Mattiello, Gustavo Guerreiro Candido Soares, Juan G. Lozano, Ana M. Beltrán, Costantino Zazza, Nico Sanna, Jun Wei Phua, Jose Mauricio Rosolen, Andrea Di Cicco, Javad Rezvani and Roberto Gunnella



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Anticooperative self-assembly of perylene diimide dyes in water unveiled by advanced molecular dynamics simulations

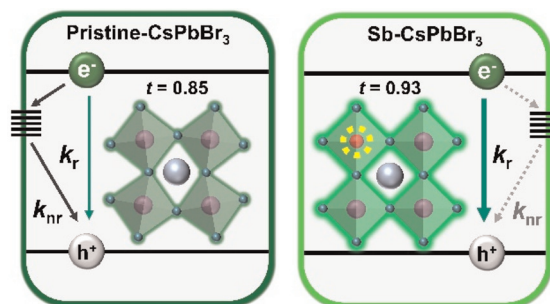
Marta Cantina, Daniele Padula, Alekos Segalina, Samuele Giannini, Fabrizio Santoro, Giacomo Prampolini* and Mariachiara Pastore*



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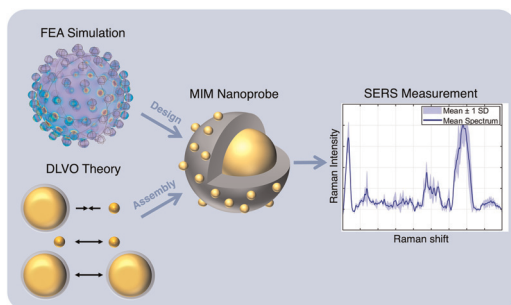
Impact of trivalent Sb³⁺-ion doping on charge carrier recombination dynamics of cesium lead bromide perovskite quantum dots

Jinwoong Jo, Jaesang Yu, Chanwoo Kim, Inyoung Cho, Kyeong Mo Lim, Jooyoung Sung,* Juwon Oh* and Jaesung Yang*



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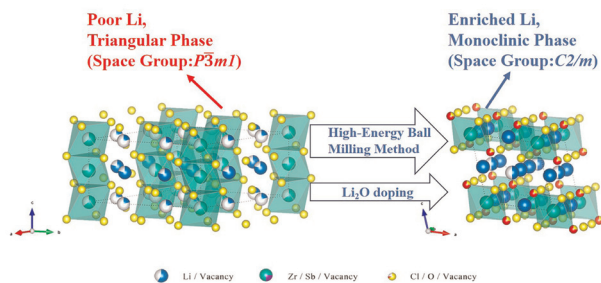
23654



Controlled synthesis of metal–insulator–metal nanoparticles for enhanced Raman spectroscopy

Junhu Zhou, Xin Qi* and John X. J. Zhang*

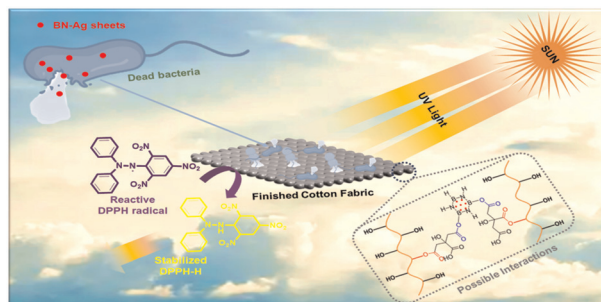
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A low-cost, lithium-rich zirconium-based oxyhalide solid electrolyte featuring an efficient ion transport structure

Qingtao Wang,* Pengfei Du, Peng Zhang, Zhenyang Shen, Yongmei Zhou and Ying Liu*

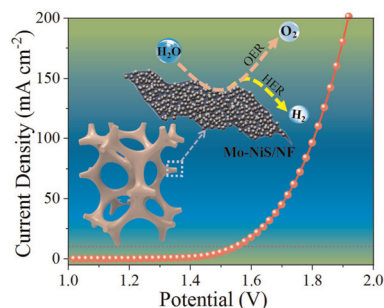
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Silver-decorated boron nitride nanocomposite-infused cotton fabric with durable antimicrobial and multifunctional properties

Swati Bishnoi, Gulshatib Aalam, Tariq Ahmad Mir, S. Wazed Ali and Sudip K. Pattanayek*

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Engineering sulfur vacancy defects in self-supporting Mo-doped NiS ultrathin nanosheets grown *in situ* on nickel foam for enhanced water splitting

Hang Zhang,* Chaochao Tao, Lei Wang, Hualan Xu, Yuan Li and Shengliang Zhong*

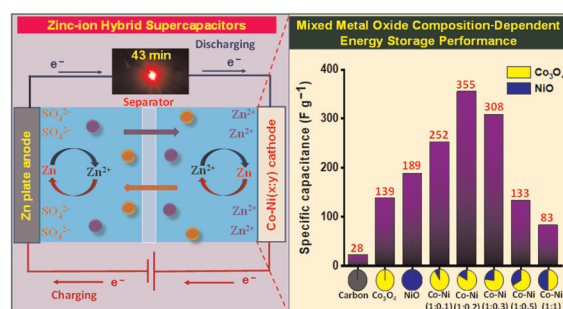


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Design of multicore–shell structured Co_3O_4 –NiO nanocomposites as high-performance cathodes for zinc-ion hybrid supercapacitors

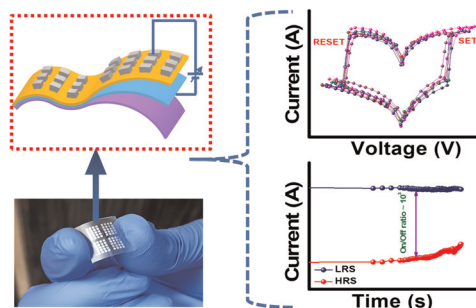
Sankar Sarathkumar, Raji Yuvaraja, Venkatesan Gowsalya, Sorna Pandian Anitha Juliet, Selvakumar Veeralakshmi, Thangaraj Vijayalakshmi, Yazen Al-Lami and Selvan Nehru*



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Fabrication of flexible memristors using PMMA-rGO/Au nanocomposite thin films with improved stability and retention time

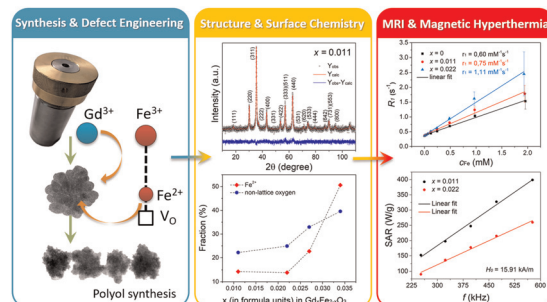
Shivam Awasthi, Subarna Pramanik, Rajarshi Chakraborty, Anita Mohan and Bhola Nath Pal*



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Ultra-low gadolinium doping in multi-core iron oxide enables efficient dual-mode MRI and magnetic hyperthermia: a structure–function study

Miloš Ogrjanović,* Hristo Kolev, Ralitsa Mladenova, Jana Vojtova, Oliver Strbak, Martin Fabián, Vladimír Girman, Biljana Dojčinović, Sanja Vranješ-Đurić and Bratislav Antić*



CORRECTION

23740

Correction: WS_2 nanosheet as a new photosensitizer carrier for combined photodynamic and photothermal therapy of cancer cells

Yuan Yong, Liangjun Zhou, Zhanjun Gu,* Liang Yan, Gan Tian, Xiaopeng Zheng, Xiaodong Liu, Xiao Zhang, Junxin Shi, Wenshu Cong, Wenyan Yin* and Yuliang Zhao*

