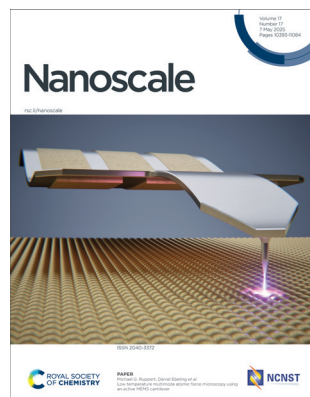


IN THIS ISSUE

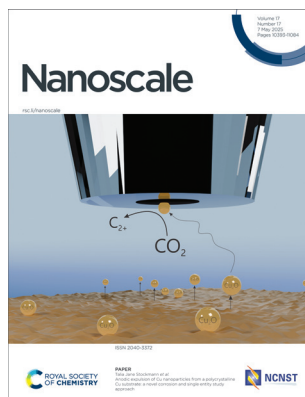
ISSN 2040-3372 CODEN NANOHL 17(17) 10393–11084 (2025)



Cover

See Michael G. Ruppert, Daniel Ebeling *et al.*, pp. 10600–10608.

Image reproduced by permission of Michael G. Ruppert from *Nanoscale*, 2025, **17**, 10600.



Inside cover

See Talia Jane Stockmann *et al.*, pp. 10609–10619.

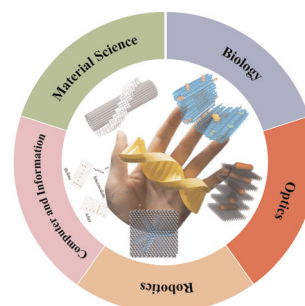
Image reproduced by permission of Oforbuike N. Egbe and Talia Jane Stockmann from *Nanoscale*, 2025, **17**, 10609.

REVIEWS

10411

Diverse applications of DNA origami as a cross-disciplinary tool

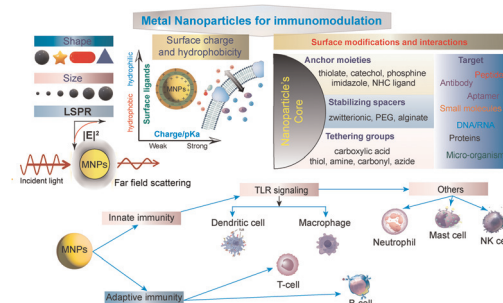
Lingyun Xiao, Xiaoxue Hu, Zhaoyu Zhou, Xiaolin Xie, Shujing Huang, Min Ji, Aobo Xu* and Ye Tian*



10433

Immunomodulatory effects of metal nanoparticles: current trends and future prospects

Puspendu Barik and Samiran Mondal*



**GOLD
OPEN
ACCESS**

EES Solar

**Exceptional research on solar
energy and photovoltaics**

Part of the EES family

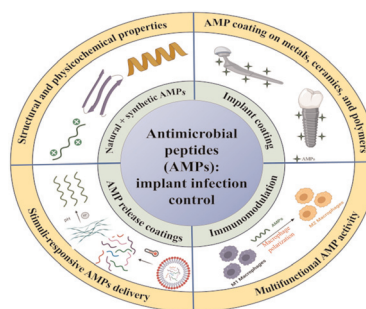
**Join
in** | Publish with us
rsc.li/EESolar

REVIEWS

10462

Antimicrobial peptides and their application to combat implant-associated infections – opportunities and challenges

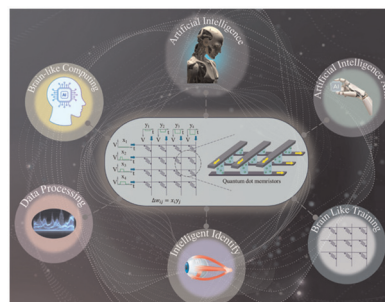
Milan Khanda, Pallabi Seal, Arya J. Mohan, Neha Arya and Sunil Kumar Boda*



10485

Quantum dot-based memristors for information processing and artificial intelligence applications

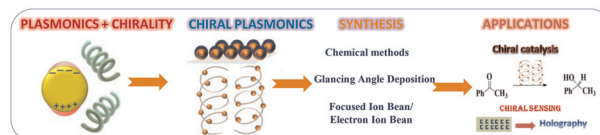
Dingshu Tian, Chuan Ke,* Bai Sun, Haotian Liang, Ziran Qian, Qifan Wen, Xueqi Chen, Chuan Yang, Min Xu* and Yong Zhao



10506

Harnessing chirality in plasmonics: from synthesis to cutting-edge applications

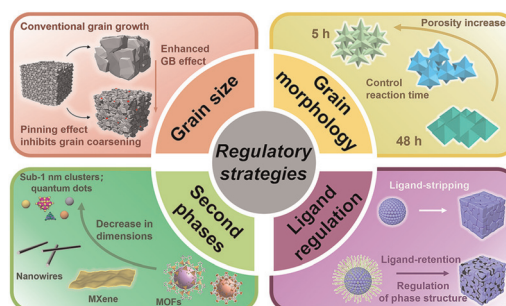
Dev Kumar Thapa* and Soumava Biswas



10531

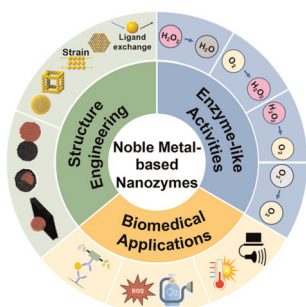
Solution-synthesized nanostructured materials with high thermoelectric performance

Pengfei Xu, Kangpeng Jin, Jie Huang, Zhenhua Yan, Liangwei Fu* and Biao Xu*



MINIREVIEW

10557

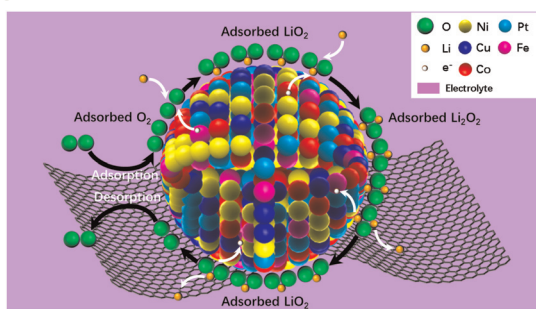


Recent progress of noble metal-based nanozymes: structural engineering and biomedical applications

Xiao Wang, Chenhao Shu, Gang Wang, Peng Han, Long Zheng, Lei Xu and Ye Chen*

COMMUNICATIONS

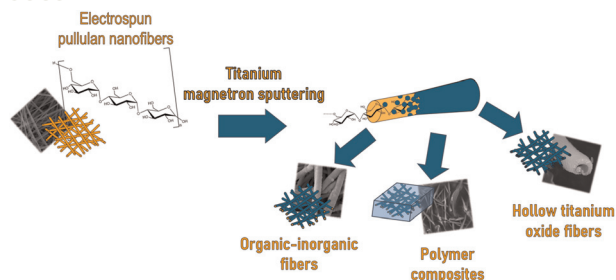
10581



High-entropy alloy nanoparticles functionalized with reduced graphene oxide as a high-performance cathode for lithium–oxygen batteries

Runsheng Wu, Qichen Zhang, Qingchao Yang, Zhengguang Hu* and Yong Zhao*

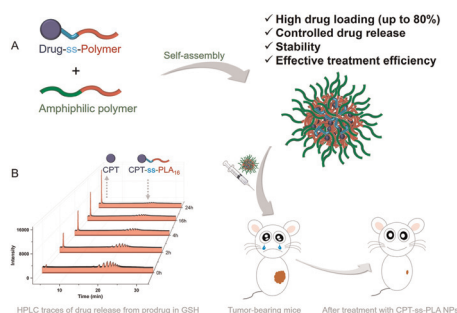
10589



Ecofriendly fabrication of organic–inorganic fibers as a template for hollow titanium oxide structures via electrospinning and magnetron sputtering

Anna Liguori,* Luca Lorenzetti, Giulia Bianchi, Federico Morini, Chiara Gualandi, Andrea Zucchelli, Massimiliano Bestetti, Antonino Pollicino, Carla Martini and Maria Letizia Focarete

10595



Smart polymer prodrugs via responsive prodrug-initiated ring-opening polymerization of lactide for improved drug delivery

Shiwei Fu, Miao Zhang, Nicholas Calzadilla, Bowen Zhao, Xiao Zhang, Bowei Yang, Victoria A. A. McKenzie, Ajay Zheng, Qianqian Ni* and Fuwu Zhang*

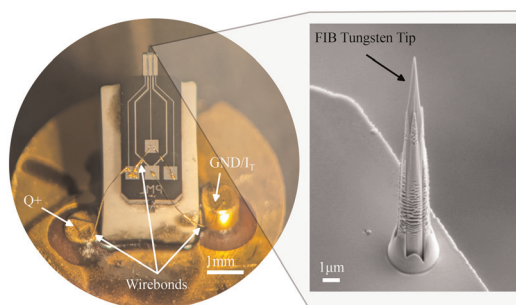


PAPERS

10600

Low temperature multimode atomic force microscopy using an active MEMS cantilever

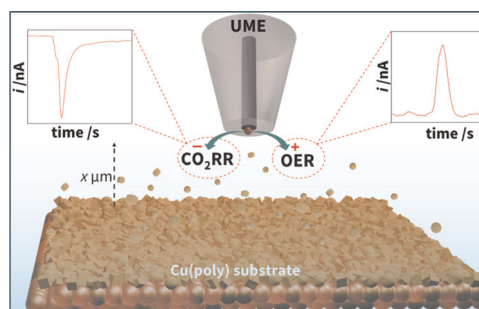
Michael G. Ruppert,* Miguel Wiche, André Schirmeisen and Daniel Ebeling*



10609

Anodic expulsion of Cu nanoparticles from a polycrystalline Cu substrate: a novel corrosion and single entity study approach

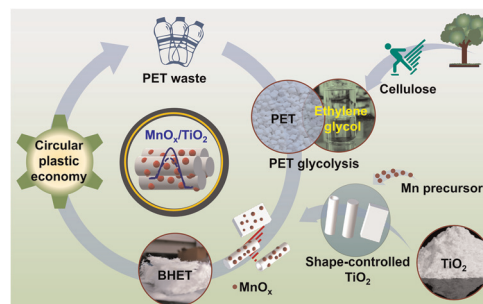
Oforbuike N. Egbe, Bradley H. P. Morrissey, Francesca M. Kerton and Talia Jane Stockmann*



10620

Morphology-tuned $\text{MnO}_x/\text{TiO}_2$ nanocatalysts for recycling PET plastic waste using biomass-derived ethylene glycol

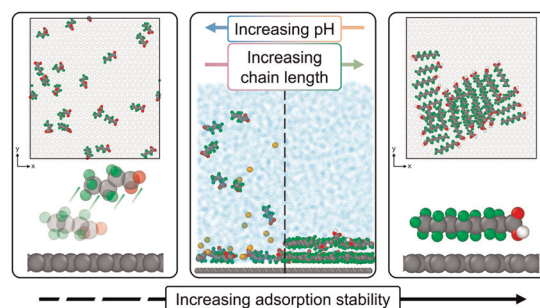
Bhattu Swapna, Madam Bobby Barnabas, Pragma Moni Gogoi, Pankaj Bharali, Giridhar Madras and Putla Sudarsanam*



10632

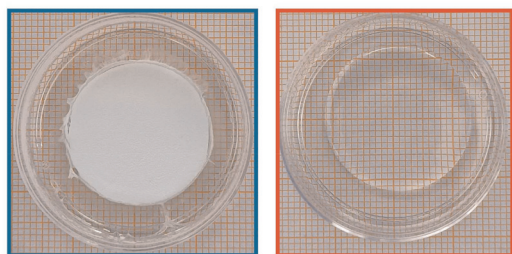
PFAS self-assembly and adsorption dynamics on graphene: molecular insights into chemical and environmental influences

Bradley G. Lamb and Boran Ma*



PAPERS

10644

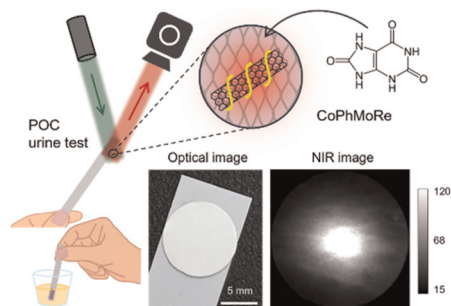


Solvent-dependent self-assembly of colloidal glasses

Self-assembled colloidal glass with 100% lanthanide nanocrystal loading for high-resolution X-ray imaging

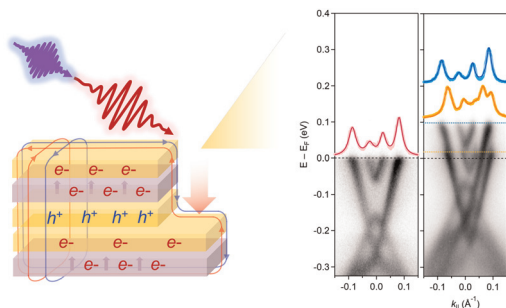
Lingcheng Zeng, Xin Quan, Yiwen Wang, Shulang Lin,* Jiahui Xu* and Yiming Wu*

10652

**Enzyme-free optical detection of uric acid using corona phase molecular recognition in near-infrared fluorescent single-walled carbon nanotubes**

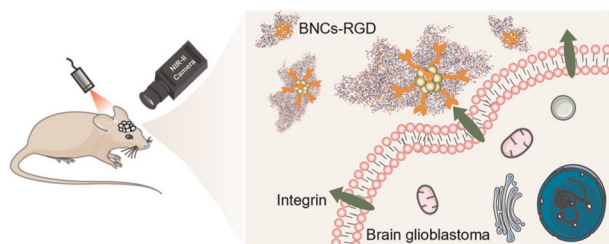
Minyeong Yoon, Seyoung Shin, Seungju Lee and Soo-Yeon Cho*

10663

**Spectroscopic evidence of intra-unit-cell charge redistribution in a charge-neutral magnetic topological insulator**

Khanh Duy Nguyen, Gabriele Berruto, Seng Huat Lee, Yunhe Bai, Haoran Lin, Qiang Gao, Zhiqiang Mao and Shuolong Yang*

10670

**Surface engineering of NIR-II luminescent gold nanoclusters for brain glioma-targeted imaging**

Shufen Tong, Jie Liu, Yonghui Chen, Xinyun Xiao, Shihua Li,* Xiaorong Song* and Huanghao Yang

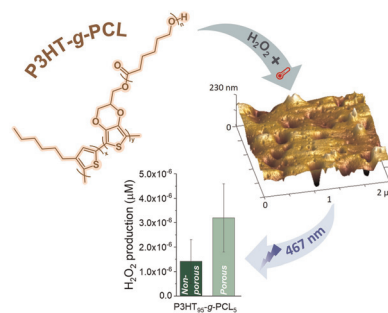


PAPERS

10677

Nanostructured films from poly(3-hexylthiophene)-graft-poly(ϵ -caprolactone) as light-responsive generators of reactive oxygen species

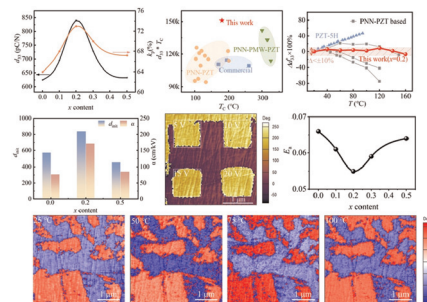
Ilaria Abdel Aziz, Elena Gabirondo, Araceli Flores, Pilar Posadas, Haritz Sardon, David Mecerreyes and Miryam Criado-Gonzalez*



10685

Enhanced electromechanical response in Dy^{3+} -doped PNN–PZT relaxor ferroelectrics

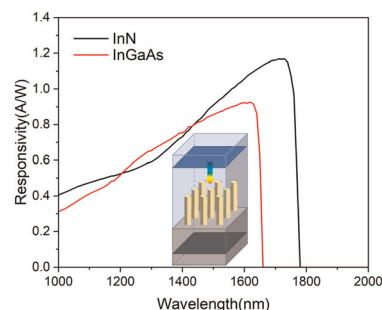
Yue Qin, Wenbin Liu, Yi Ding, Ting Zheng* and Jiagang Wu



10697

Ultra-high absorption efficiency of InN nanowires with a wide bandwidth in the short-wave infrared range

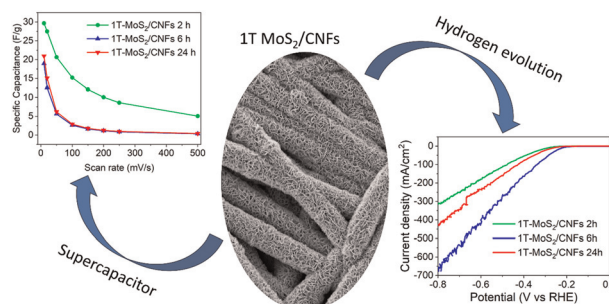
Yanmeng Chu, ZhouXiang Chen, Hanchen Zhu, Linjun Zhang, Fuxiang Shang, Qichao Hou, Lulu Chen, Wenzhang Fang, Yishu Zhang, Zhiyuan Cheng* and Yunyan Zhang*



10706

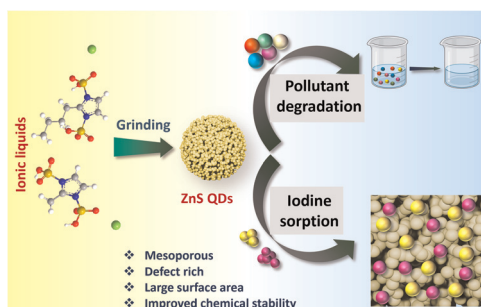
In situ growth of layered 1T-MoS₂ onto carbon nanofibers as a strategy towards advanced hybrid materials for electrochemical energy storage and catalysis

Felix Boll, Micaela Pozzati, Matteo Crisci, Bernd Smarsly, Teresa Gatti* and Mengjiao Wang*

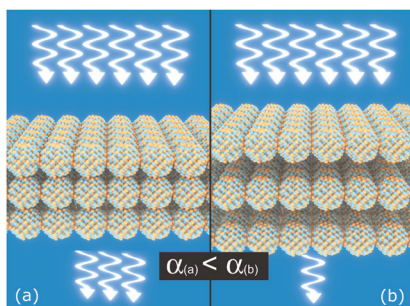


PAPERS

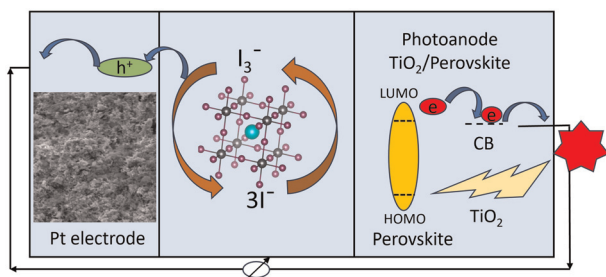
10718



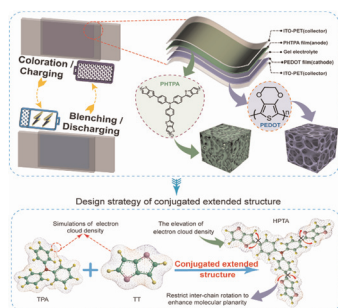
10732



10743



10752

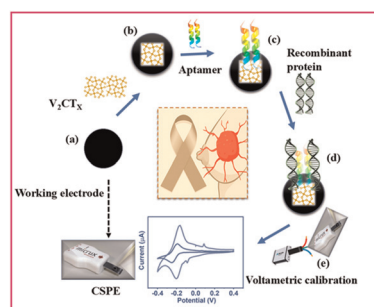


PAPERS

10761

Ultrasensitive electroanalytical sensing platform using aptamer-conjugated V_2CT_x MXene for the detection of the HER-2 biomarker

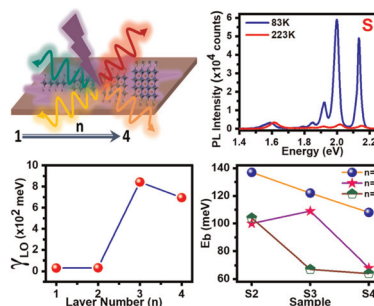
Reema Rawat, Sonam Singh, Souradeep Roy, Samarika Dubey, Tapas Goswami, Ashish Mathur* and James McLaughlin



10771

Exciton–phonon coupling in quasi-two-dimensional Ruddlesden–Popper perovskites: impact of a mixed-phase structure

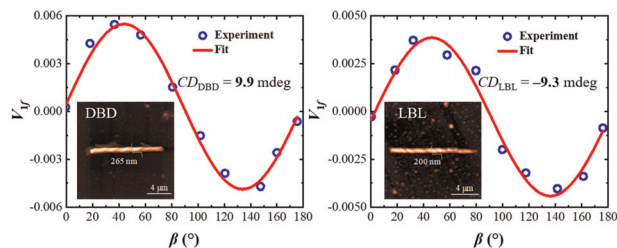
Sushovan Sarkar, Nagendra S. Kamath, Koushik Gayen and Suman Kalyan Pal*



10784

Circular dichroism measurement of a single anisotropic chiral nanostructure using scanning circular dichroism microscopy

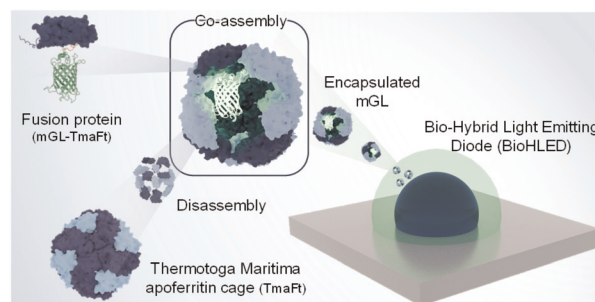
Jiaxin Du, Xujin Qin, Xinyu Li, Hongyan Shi, Yueling Zhang, Pengfei Duan* and Bo Gao*



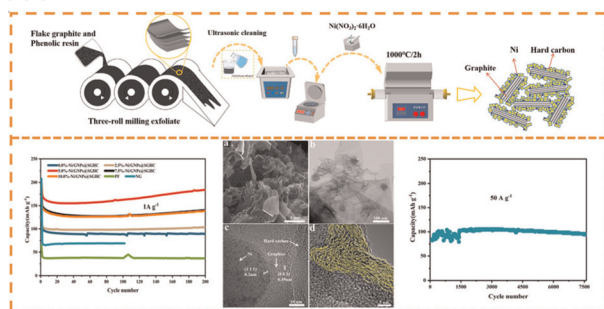
10793

Fusing fluorescent proteins and ferritin for protein cage based lighting devices

Alba Sanz-Velasco, Marta Patrian, Mattia Nieddu, Boxuan Shen, Juan Pablo Fuenzalida Werner, Mauri A. Kostianen, Rubén D. Costa* and Eduardo Anaya-Plaza*



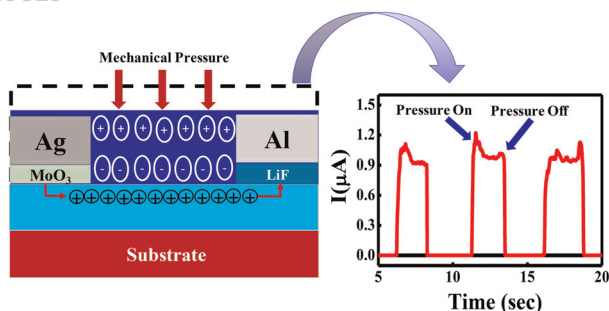
10801



Three-roll milling exfoliated graphite nanoplatforms with semi-graphitized hard carbon by Ni-catalyzed pyrolysis of phenolic resin for high-performance sodium-ion batteries

Xin Wang, Yabing Chen, Conghang Yang, Juntong Huang,* Zhi Chen,* Haijun Zeng, Yao Su and Li Chen

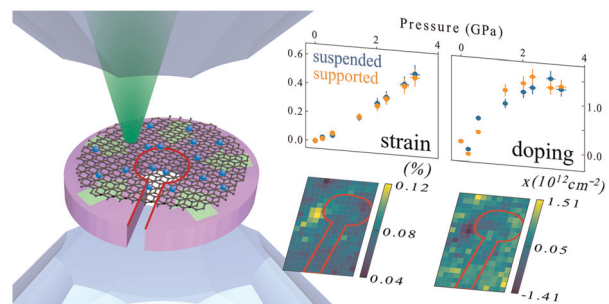
10813



Self-biased silicon transistor with a piezoelectric gate for an efficient mechanical energy harvesting device

Utkarsh Pandey, Nila Pal, Sandeep Dahiya, Sobhan Hazra and Bhola Nath Pal*

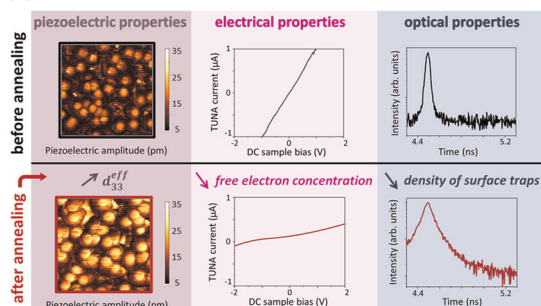
10825



Strain and doping transfer between suspended and supported bilayer graphene

Riccardo Galafassi, Fabien Vialla, V. Rajaji, Alexis Forestier, Bruno Sousa Araújo, Hatem Diaf, Natalia Del Fatti, Antonio Gomes Souza Filho, Arnaud Claudel, Laëtitia Marty and Alfonso San-Miguel*

10835



Enhancement of the piezoelectric response of ZnO nanowires grown via PLI-MOCVD using post-deposition treatments through adjusted screening and surface effects

L. Legardinier, G. Ardila,* I. Gélard, C. Jiménez, M. Weber, F. Donatini and V. Consonni*

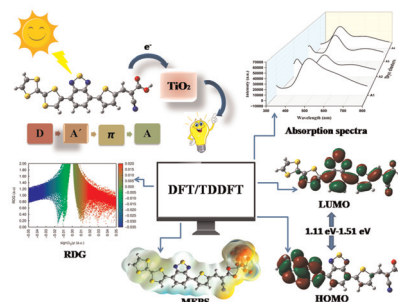


PAPERS

10850

Tuning the optical and charge transfer properties of tetrathiafulvalene-based D–A'– π –A dyes for DSSCs: a DFT and TD-DFT investigation

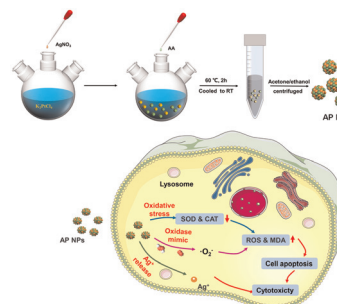
Banashmita Barman, Rinki Deka, Smiti Rani Bora and Dhruva Jyoti Kalita*



10865

Catalytic and biological properties of Ag–Pt bimetallic nanoparticles: composition-dependent activity and cytotoxicity

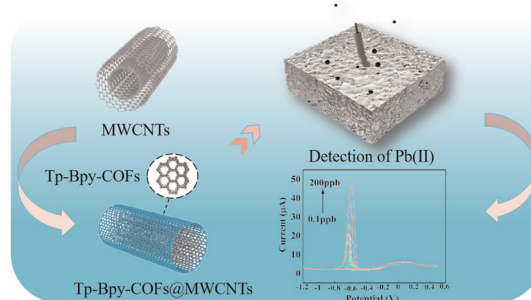
Rongtao Liu, Hongwei Liang, Jian Liu, Huoqing Zhong, Rongxue Cui, Xin Li, Bing Yan* and Hongyu Zhou*



10876

Covalent organic framework encapsulated multi-walled carbon nanotubes for ultrasensitive electrochemical determination of lead ions in water and e-cigarette samples

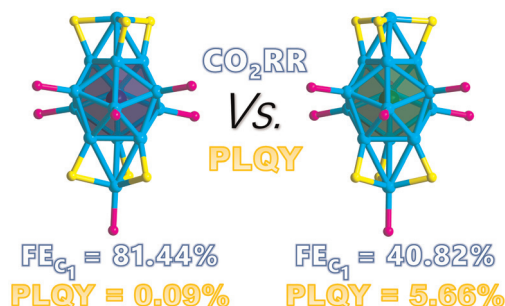
Hao Zhang, Hao Cheng, Dan Chen, Chunqiong Wang,* Jingtao Mao, Zhihua Yang, Wen-Tong Chen, Lijun Li* and Guangzhi Hu*



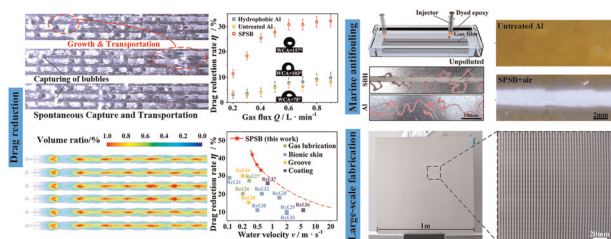
10886

Impact of free valence electron contraction on the optical and electrocatalytic properties of nanoclusters: based on M_1Ag_{14} ($M = Pt/Pd$) series nanoclusters

Tingting Liu, Yuansheng Li, Yang Zuo, Along Ma, Yifei Wang, Shuo Zhang, Xiaoshuang Ma, Zhengmao Yin,* Junxian Yang* and Shuxin Wang*



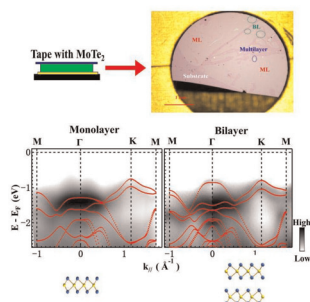
10892



High drag reduction by spontaneous capture and transportation of bubbles

Junyi Lin, Xinming Wang, Han Wang, Zening Sun, Defeng Yan* and Jinlong Song*

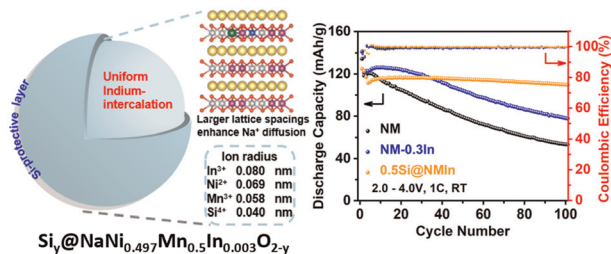
10901



Synthesis and electronic structure of atomically thin 2H-MoTe₂

Wenjuan Zhao,* Xieyu Zhou, Dayu Yan, Yuan Huang,* Cong Li, Qiang Gao, Paolo Moras, Polina M. Sheverdyayeva, Hongtao Rong, Yongqing Cai, Eike F. Schwier, Xixia Zhang, Cheng Shen, Yang Wang, Yu Xu, Wei Ji, Chen Liu, Youguo Shi, Lin Zhao, Lihong Bao, Qingyan Wang, Kenya Shimada, Xutang Tao, Guangyu Zhang, Hongjun Gao, Zuyan Xu, Xingjiang Zhou* and Guodong Liu*

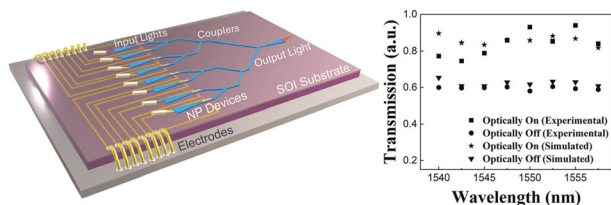
10910



In intercalation and an Si-containing protective layer enhance the electrochemical performance of NaNi_{0.5}Mn_{0.5}O₂ for sodium-ion batteries

Peng Sun, Chenhui Wang, Jing Liu, Jie Liao, Yaohan Fei, Ziyang Zhang, Ning Nie, Jiangjiexing Wu,* You Han, Jinli Zhang and Wei Li*

10922



Reconfigurable multiwavelength nanophotonic circuit based on a low-voltage, optically readable engineered resistive switch

Santosh Kumar, Ashutosh Kumar, Rahul Dev Mishra, Suresh Kumar Pandey, Prem Babu and Mukesh Kumar*

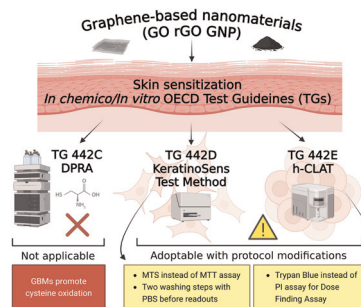


PAPERS

10932

Graphene-based materials are not skin sensitizers: adoption of the *in chemico/in vitro* OECD test guidelines

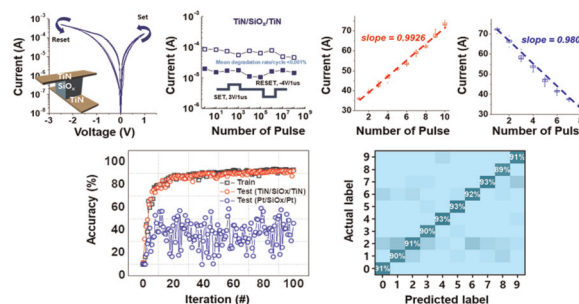
Michela Carlin, Marc Morant-Giner, Marina Garrido, Silvio Sosa, Alberto Bianco, Aurelia Tubaro, Maurizio Prato and Marco Pelin*



10946

Enhancing stability and iterative learning in neuromorphic memristor *via* TiN/SiO_x/TiN interface engineering

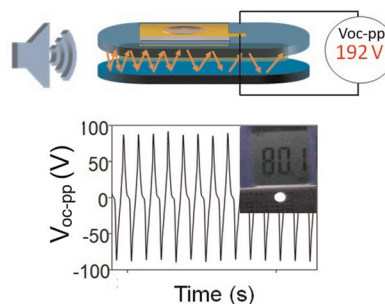
Hyun Kyu Seo, Jae-Seung Jeong, Jaeho Jung, Gun Hwan Kim* and Min Kyu Yang*



10957

Enhancing the acoustoelectric conversion of a nanofiber transducer in combination with a kazoo

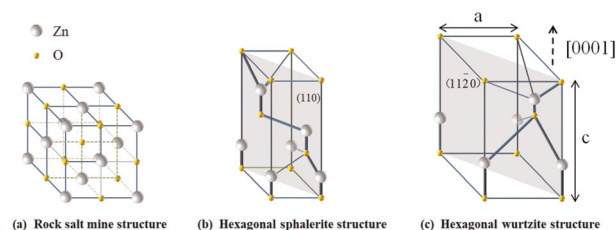
Kang Wang, Lu Peng, Peng Jiang, Le Xu, Lianghui Li, Hongxia Wang, Xin Jin, Wenyu Wang and Tong Lin*



10969

Microscopic morphology modulation and microwave absorption properties of nano-ZnO

Jin Chen,* Zhifeng Guo, Jiani Wang and Xuan Zhang

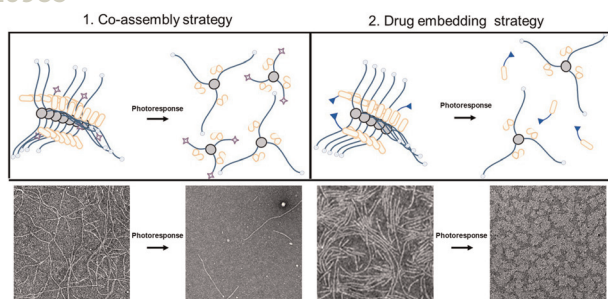


(a) Rock salt mine structure (b) Hexagonal sphalerite structure (c) Hexagonal wurtzite structure



PAPERS

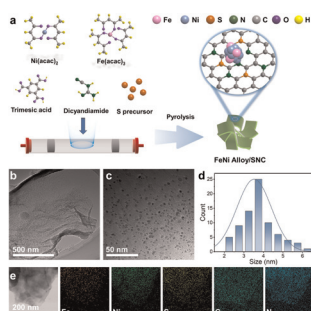
10985



Discotic amphiphilic supramolecular polymers for drug release and cell activation with light

Ramona Santini, Edgar Fuentes, Galyna Maleeva, Carlo Matera, Fabio Riefole, José Augusto Berrocal, Lorenzo Albertazzi, Pau Gorostiza* and Silvia Pujals*

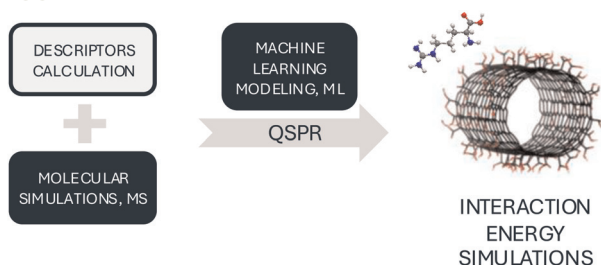
10996



Sulfur-modified charge-asymmetry FeNi nanoalloy catalysts anchored on N-doped carbon nanosheets for efficient electrochemical CO₂ reduction

Yi Yao, Xiaochen Wang, Yuanting Lei, Lili Zhang, Yan Gao,* Faqiang Xu* and Huishan Shang*

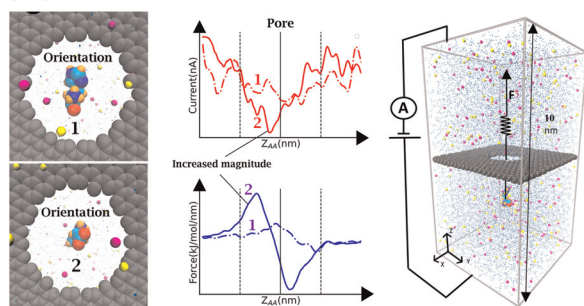
11004



Predicting biomolecule adsorption on nanomaterials: a hybrid framework of molecular simulations and machine learning

Ewelina Wyrzykowska,* Mateusz Balicki, Iwona Anusiewicz, Ian Rouse, Vladimir Lobaskin, Piotr Skurski and Tomasz Puzyn*

11016



Orientation dependence of current blockade in single amino acid translocation through a graphene nanopore

Pranjal Sur, Anurag Upadhyaya, Manoj Varma* and Prabal K. Maiti*

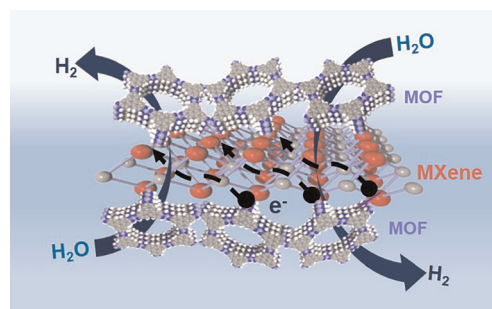


PAPERS

11028

Optimizing active sites *via* chemical bonding of 2D metal–organic frameworks and MXenes for efficient hydrogen evolution reaction activity

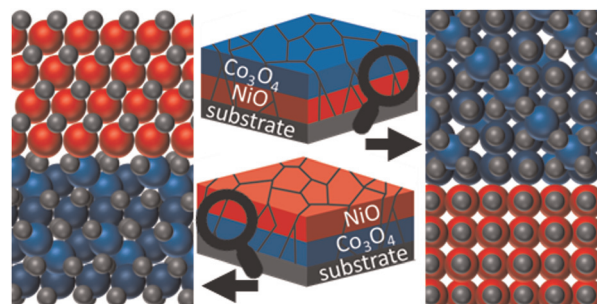
Anand P. Tiwari, Priyanshu Chandra, Md Saifur Rahman, Katherine A. Mirica and William J. Scheideler*



11037

On the epitaxial growth in ALD Co_3O_4 - and NiO -based bilayers

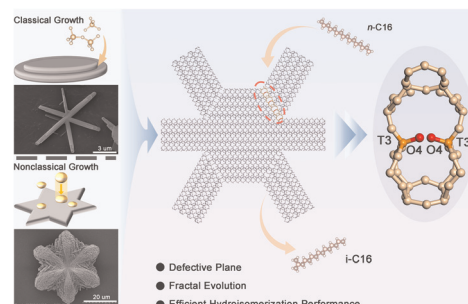
Renée T. M. van Limpt,* Cristian A. A. van Helvoirt, Mariadriana Creatore and Marcel A. Verheijen*



11049

Defective plane induced fractal TON zeolites for efficient hydroisomerization of long-chain hydrocarbons

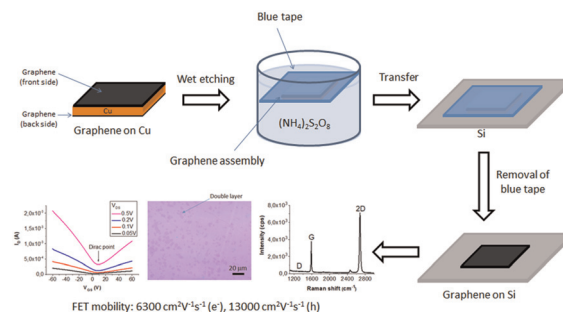
Li Liu, Haodong Xie, Xiang Ni, Xue Yang, Yan Liu, Yufang Ma, Feixiang Yuan, Shuo Tao,* Lei Wang* and Hongjun Zhu

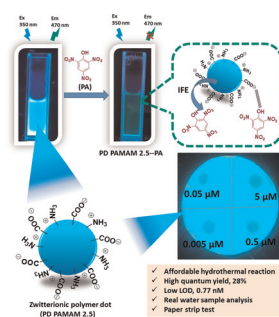


11060

Semi-dry transfer of CVD graphene on Si: surface morphology and electronic properties

Trung T. Pham,* Trung H. Huynh, Jean-François Colomer, Nicolas Reckinger, Benoît Hackens and Robert Sporken





A fluorescent nonconjugated zwitterionic polymer dot: hydrothermal synthesis and application in the nano-molar sensing of 2,4,6-trinitrophenol

Soumen Ghosh, Aayush Anand and Subrata Chattopadhyay*

