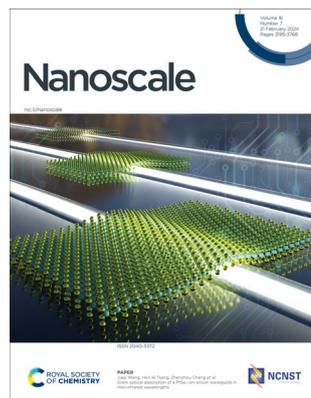


IN THIS ISSUE

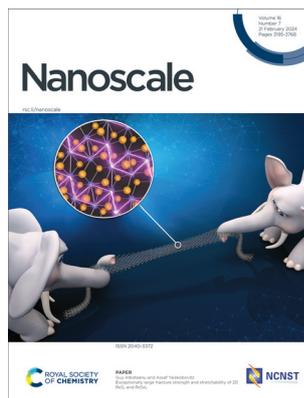
ISSN 2040-3372 CODEN NANOHL 16(7) 3195-3768 (2024)



Cover

See Jiaqi Wang, Hon Ki Tsang, Zhenzhou Cheng *et al.*, pp. 3448–3453.

Image reproduced by permission of Jiaqi Wang from *Nanoscale*, 2024, **16**, 3448.



Inside cover

See Guy Alboteanu and Assaf Ya'akovovitz, pp. 3454–3461.

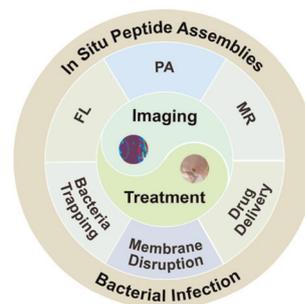
Image reproduced by permission of Assaf Ya'akovovitz from *Nanoscale*, 2024, **16**, 3454.

REVIEWS

3211

In situ peptide assemblies for bacterial infection imaging and treatment

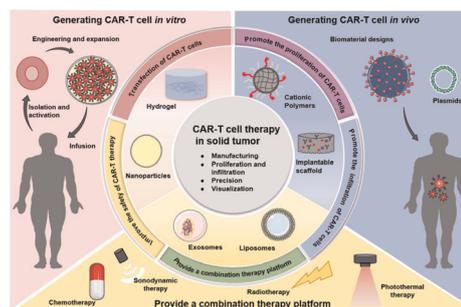
Yanyan Zhou, Lingling Xu, Xianbao Sun, Wenjun Zhan* and Gaolin Liang*



3226

Recent advances in biomaterial designs for assisting CAR-T cell therapy towards potential solid tumor treatment

Yuting Lin, Ying Chen, Zheng Luo and Yun-Long Wu*



RSC Applied Polymers

GOLD
OPEN
ACCESS

The application of polymers,
both natural and synthetic

Interdisciplinary and open access

rsc.li/RSCApplPolym

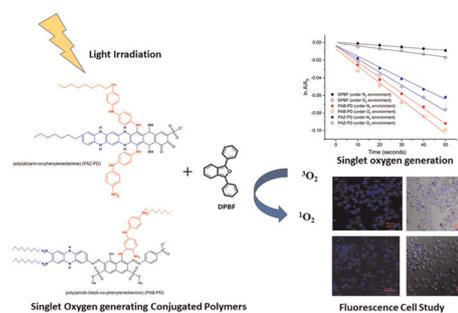
Fundamental questions
Elemental answers

REVIEWS

3243

A comprehensive review on singlet oxygen generation in nanomaterials and conjugated polymers for photodynamic therapy in the treatment of cancer

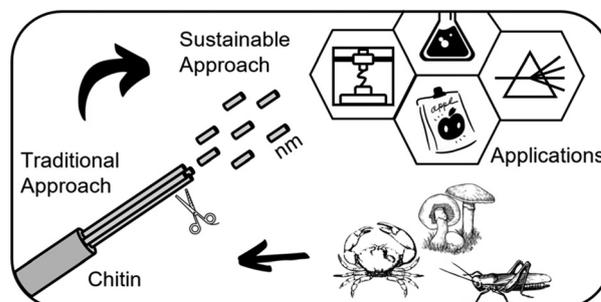
Neetika Singh, Ria Sen Gupta and Suryasarathi Bose*



3269

Nanochitin for sustainable and advanced manufacturing

Pei Lin Chee, Thenapakiam Sathasivam, Ying Chuan Tan, Wenya Wu, Yihao Leow, Quentin Ray Tjeh Lim, Pek Yin Michelle Yew, Qiang Zhu and Dan Kai*



3293

'When is a hotspot a good nanospot' – review of analytical and hotspot-dominated surface enhanced Raman spectroscopy nanoplatforms

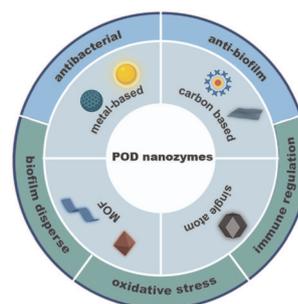
Mike Hardy* and Pola Goldberg Oppenheimer*



3324

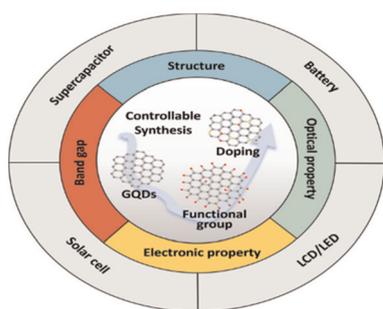
Advanced nanozymes possess peroxidase-like catalytic activities in biomedical and antibacterial fields: review and progress

Yunxin Ye, Jiyuan Zou, Weian Wu, Ziyang Wang, Siyi Wen, Zitian Liang, Shirong Liu, Yifan Lin, Xuanyu Chen, Tao Luo,* Li Yang,* Qianzhou Jiang* and Lvhuo Guo*



REVIEWS

3347

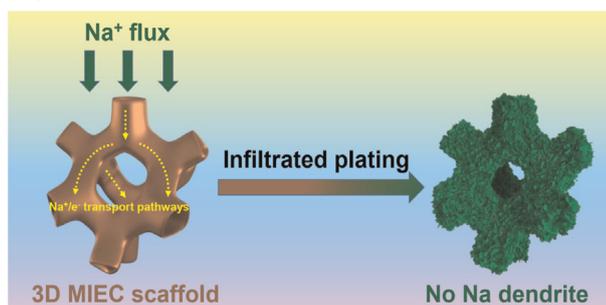


Engineering functionalization and properties of graphene quantum dots (GQDs) with controllable synthesis for energy and display applications

Hyeonwoo Cho, Gaeun Bae and Byung Hee Hong*

MINIREVIEWS

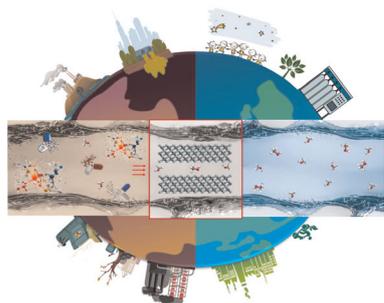
3379



3D mixed ion/electron-conducting scaffolds for stable sodium metal anodes

Xuan Lu, Xiuxia Zhao, Shujiang Ding* and Xiaofei Hu*

3393

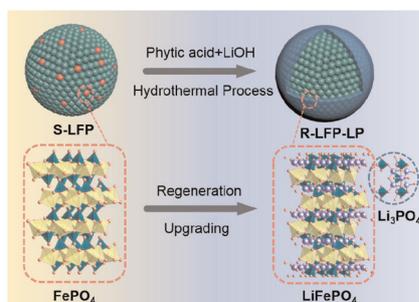


Methanol recovery: potential of nanolaminate organic solvent nanofiltration (OSN) membranes

Tuğba Baysal, Aysa Güvensoy-Morkoyun, Ş. Birgül Tantekin-Ersolmaz* and Sadiye Velioglu*

COMMUNICATIONS

3417



One-step regeneration and upgrading of spent LiFePO₄ cathodes with phytic acid

Xuhui Zhu, Xueqi Ren, Junting Chen, Mengqi Gong, Ran Mo, Siyuan Luo and Shun Yang*

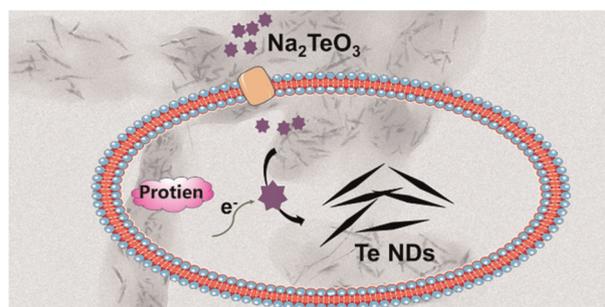


COMMUNICATIONS

3422

Bacterially synthesized superfine tellurium nanoneedles as an antibacterial and solar-thermal still for efficient purification of polluted water

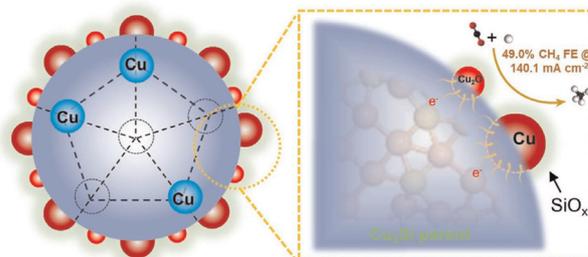
Yu Wang, Zhongming Huang, Yijian Gao, Jie Yu, Jie Zhang, Xiliang Li, Yuliang Yang, Qi Zhao and Shengliang Li*



3430

An *in situ* exsolved Cu-based electrocatalyst from an intermetallic Cu₅Si compound for efficient CH₄ electrosynthesis

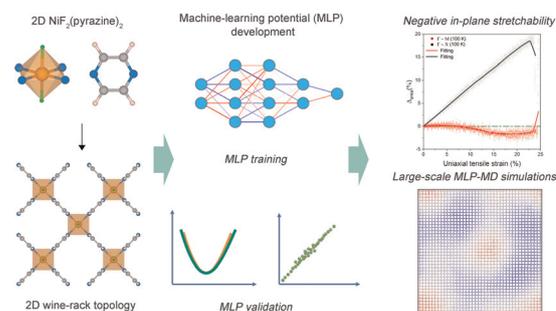
Huanhuan Tao, Fang Wang, Zhengguo Zhang and Shixiong Min*



3438

Unravelling abnormal in-plane stretchability of two-dimensional metal–organic frameworks by machine learning potential molecular dynamics

Dong Fan,* Aydin Ozcan, Pengbo Lyu and Guillaume Maurin*

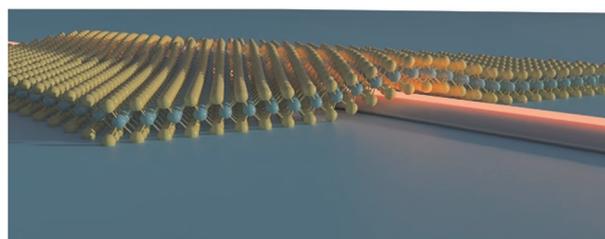


PAPERS

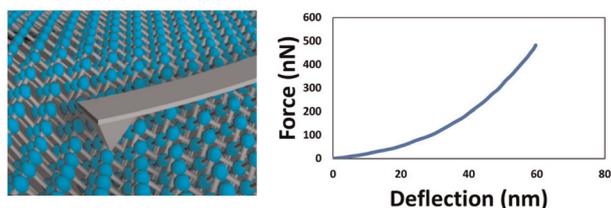
3448

Giant optical absorption of a PtSe₂-on-silicon waveguide in mid-infrared wavelengths

Tianping Xu, Liqiang Qi, Yingqi Xu, Shuqi Xiao, Quan Yuan, Rui Niu, Jiaqi Wang,* Hon Ki Tsang,* Tiegeng Liu and Zhenzhou Cheng*



3454

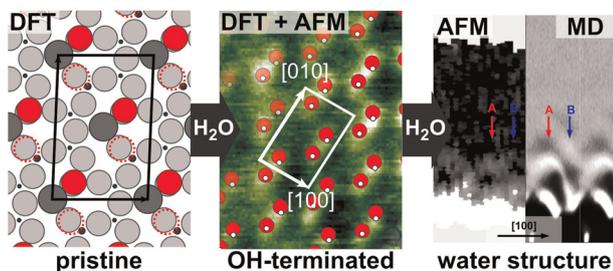


Exceptionally large fracture strength and stretchability of 2D ReS₂ and ReSe₂

Guy Alboteanu and Assaf Ya'akovitz*

3462

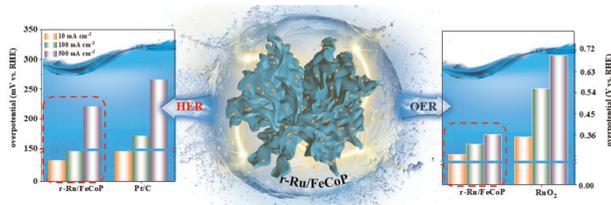
Microcline (001)-Water Interface



Atomic structure and water arrangement on K-feldspar microcline (001)

Tobias Dickbreder,* Franziska Sabath,* Bernhard Reischl, Rasmus V. E. Nilsson, Adam S. Foster, Ralf Bechstein and Angelika Kühnle

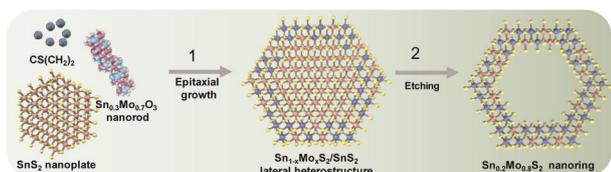
3474



Dense r-Ru/FeCoP heterointerfaces induced by a defect-assisted strategy for ultrastable alkaline overall water splitting

Yilin Wang, Xiao Chen, Yunmei Du,* Shuangshuang Li, Mengmeng Wang, Yu Yang and Lei Wang*

3484



Metal chalcogenide nanorings for temperature-strain dual-mode sensing

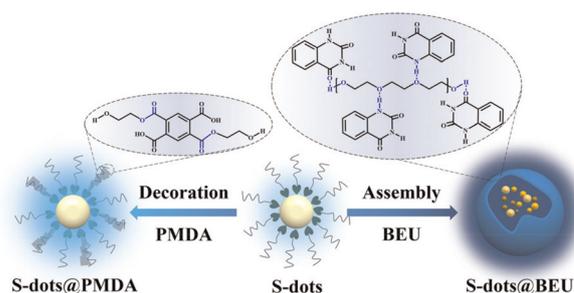
Xiaoshan Wang, Jinhao Zhang, Peiyuan Liu, Danlin Wei, Daobo Tian, Shipeng Liu, Qian Chen, Jiacheng Cao, Zhiwei Wang and Xiao Huang*



3492

Fabrication of highly luminescent and thermally stable composites of sulfur nanodots through surface modification and assembly

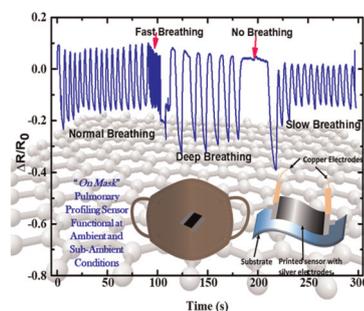
Bingye Sun, Yu-e Shi,* Jiaqi Guo and Zhenguang Wang*



3498

Crosstalk-free graphene–liquid elastomer based printed sensors for unobtrusive respiratory monitoring

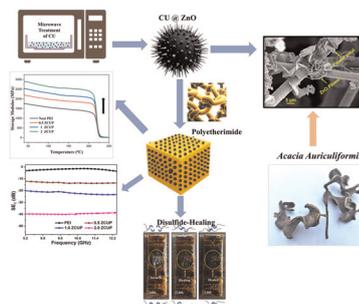
Simran Sharma, Ankur Thapa, Sumit Singh and Titash Mondal*



3510

Microwave-assisted ZnO-decorated carbon urchin resembling 'shish-kebab' morphology with self-healing and enhanced electromagnetic shielding properties

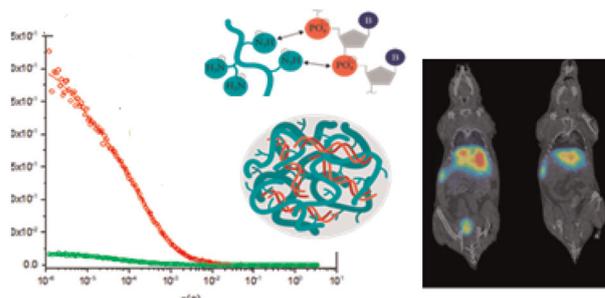
Sandeep Kumar Singh,* Rishi Raj, Akshay Sunil Salvi, Sampath Parasuram, S. Kumar and Suryasarathi Bose*



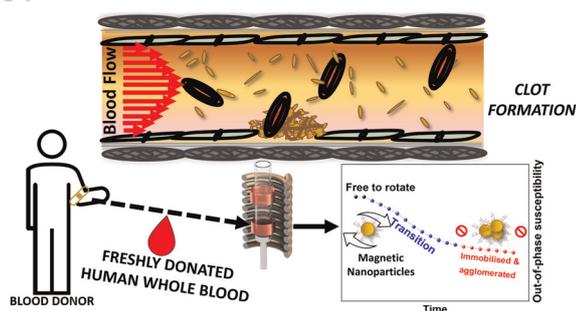
3525

A study of complexation and biological fate of polyethyleneimine-siRNA polyplexes *in vitro* and *in vivo* by fluorescence correlation spectroscopy and positron emission tomography imaging

Tanja Ludtke, Cristina Simó, Santiago Gimenez Reyes, Marta Martinez Moro, Cristian Salvador, Hernan Ritacco, Patrizia Andreozzi, Jordi Llop* and Sergio E. Moya*



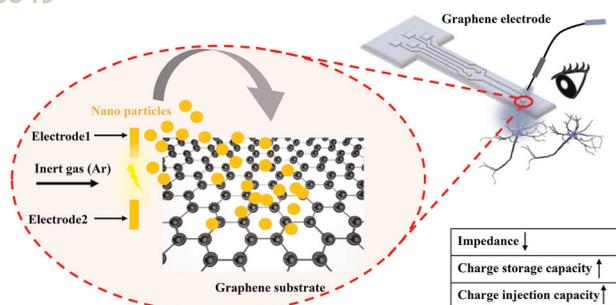
3534



Magnetic coagulometry: towards a new nanotechnological tool for ex vivo monitoring coagulation in human whole blood

Antonio Santana-Otero, Alan Harper, Neil Telling, Daniel Ortega* and David Cabrera*

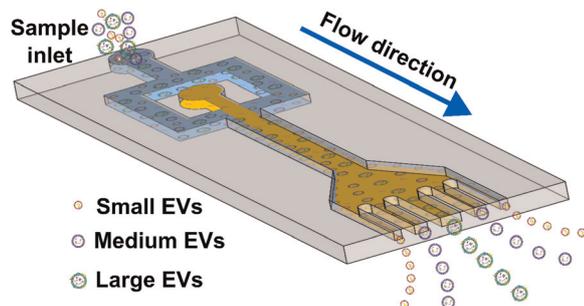
3549



Surface modification of multilayer graphene electrodes by local printing of platinum nanoparticles using spark ablation for neural interfacing

Nasim Bakhshae Babaroud,* Samantha J. Rice, Maria Camarena Perez, Wouter A. Serdijn, Sten Vollebregt and Vasiliki Giagka

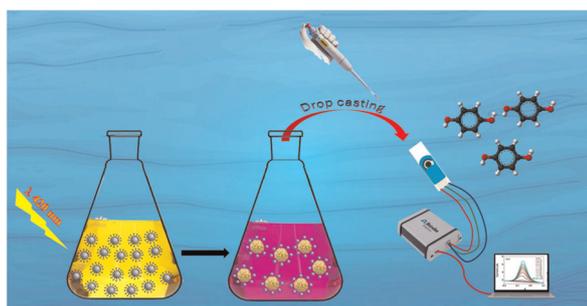
3560



Viscoelastic microfluidics for enhanced separation resolution of submicron particles and extracellular vesicles

Samith Hettiarachchi, Lingxi Ouyang, Haotian Cha, Helena H. W. B. Hansen, Honjie An, Nam-Trung Nguyen* and Jun Zhang*

3571



Photochemical synthesis, characterization, and electrochemical sensing properties of CD-AuNP nanohybrids

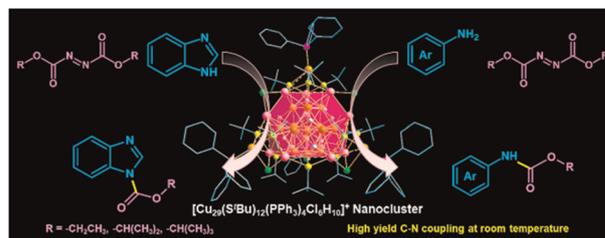
Giuseppe Nocito, Rayhane Zribi, Meryam Chelly, Luca Pulvirenti, Giuseppe Nicotra, Corrado Bongiorno, Antonino Arrigo,* Barbara Fazio, Giovanni Neri, Francesco Nastasi* and Sabrina Conoci



3583

A thiolated copper-hydride nanocluster with chloride bridging as a catalyst for carbonylative C–N coupling of aryl amines under mild conditions: a combined experimental and theoretical study

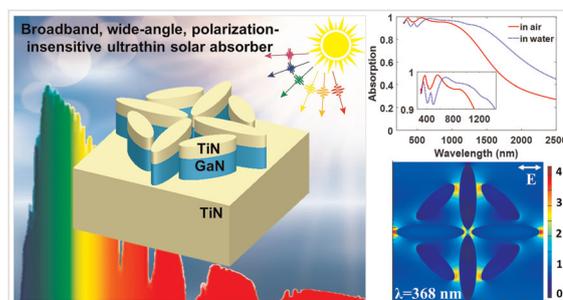
Anish Kumar Das, Sourav Biswas, Amit Pal, Surya Sekhar Manna, Avirup Sardar, Pradip Kumar Mondal, Basudev Sahoo,* Biswarup Pathak* and Sukhendu Mandal*



3591

An elliptical nanoantenna array plasmonic metasurface for efficient solar energy harvesting

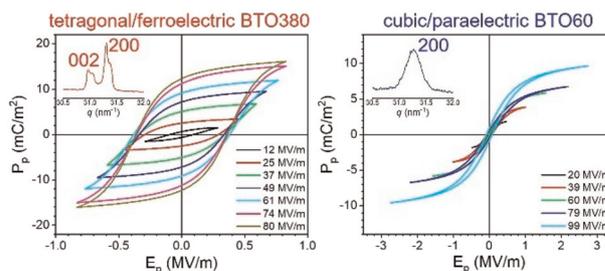
Zahra Ashrafi-Peyman, Amir Jafarholi and Alireza Z. Moshfegh*



3606

Nonlinear ferroelectric characteristics of barium titanate nanocrystals determined via a polymer nanocomposite approach

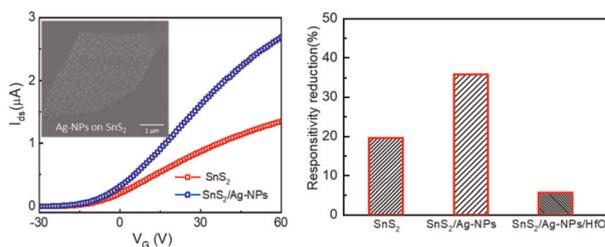
Qiong Li, Elshad Allahyarov, Tianxiang Ju, Zhiqun Lin* and Lei Zhu*



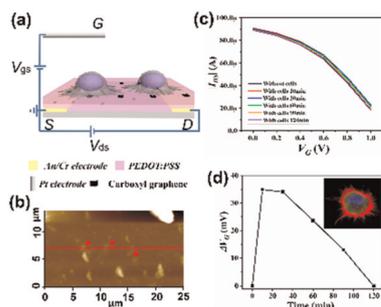
3622

Broadening spectral responses and achieving environmental stability in SnS2/Ag-NPs/HfO2 flexible phototransistors

Muhammad Farooq Khan, Sana Sadaqat, Muhammad Asghar Khan, Shania Rehman, Waqas Siddique Subhani, Mohamed Ouladsmane, Malik Abdul Rehman, Fida Ali, Harri Lipsanen, Zhipei Sun, Jonghwa Eom* and Faisal Ahmed*



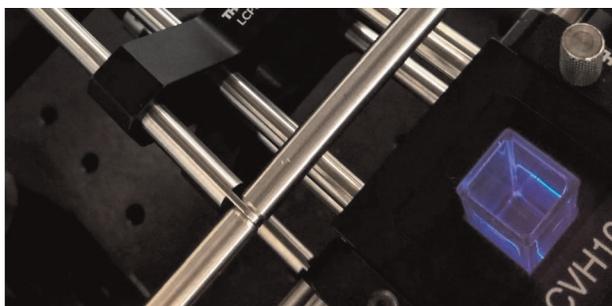
3631



Carboxyl graphene modified PEDOT:PSS organic electrochemical transistor for in situ detection of cancer cell morphology

Qingyuan Song, Hongni Liu, Weiyi Wang, Chaohui Chen, Yiping Cao, Bolei Chen, Bo Cai* and Rongxiang He*

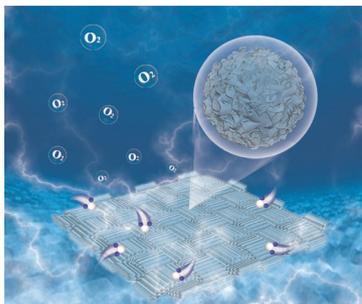
3641



Beam-profile compensation for quantum yield characterisation of Yb–Tm codoped upconverting nanoparticles emitting at 474 nm, 650 nm and 804 nm

J. S. Matias,* K. Komolibus, W. K. Kiang, S. Konugolu-Venkata-Sekar and S. Andersson-Engels

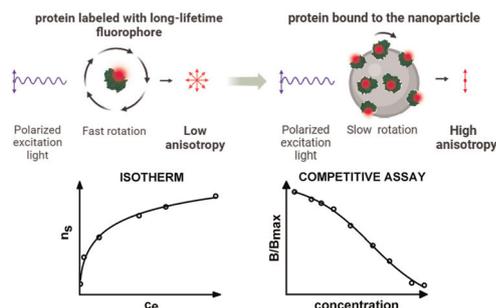
3650



Cr doping and heterostructure-accelerated NiFe LDH reaction kinetics assist the MoS₂ oxygen evolution reaction

Jun Tang, Jinzhao Huang,* Sixuan Zhang, Zehui Liu and Jing Xiao*

3659



A generic approach based on long-lifetime fluorophores for the assessment of protein binding to polymer nanoparticles by fluorescence anisotropy

Marwa A. Ahmed, Dóra Hessz, Benjámín Gyarmati, Mirkó Páncsics, Norbert Kovács, Róbert E. Gyurcsányi, Miklós Kubinyi and Viola Horváth*

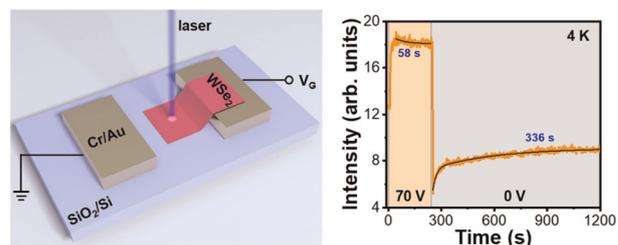


PAPERS

3668

Optical readout of charge carriers stored in a 2D memory cell of monolayer WSe₂

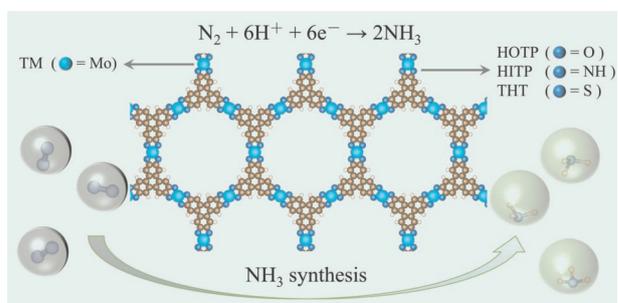
Si Li, Kan Liao, Yanfeng Bi, Ke Ding, Encheng Sun, Chunfeng Zhang, Lin Wang,* Fengrui Hu,* Min Xiao* and Xiaoyong Wang*



3676

Mo-X₄ (X = O, NH and S)-mediated triphenylene-based two-dimensional carbon-rich conjugate frameworks for an efficient nitrogen reduction reaction

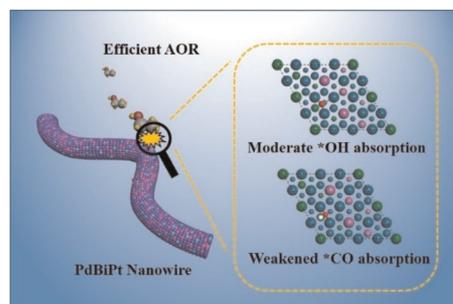
Man Qiao,* Jiachi Xie and Dongdong Zhu*



3685

A universal synthesis strategy of Pd-based trimetallic nanowires for efficient alcohol electrooxidation

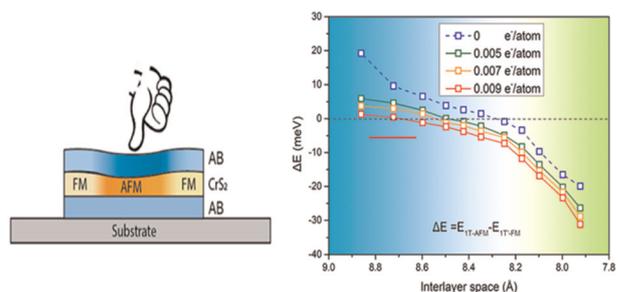
Liang Ji, Xiaoyue Zhang, Ningkan Qian, Junjie Li, Sudan Shen, Xingqiao Wu,* Xin Tan,* Hui Zhang* and Deren Yang



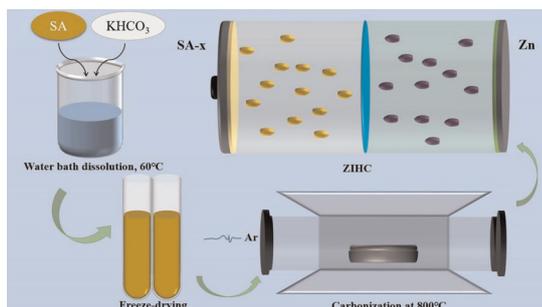
3693

Out-of-plane pressure and electron doping inducing phase and magnetic transitions in GeC/CrS₂/GeC van der Waals heterostructure

Kaiyun Chen, Xue Yan, Junkai Deng,* Cunle Bo, Mengshan Song, Dongxiao Kan, Jiabei He, Wangtu Huo and Jefferson Zhe Liu*



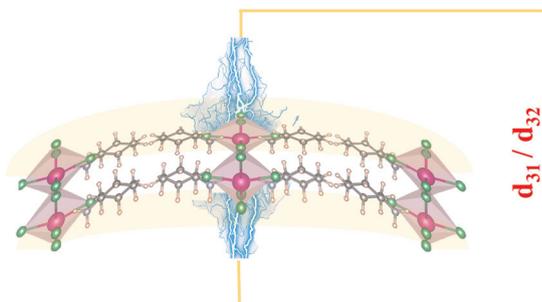
3701



Controllable synthesis of electric double-layer capacitance and pseudocapacitance coupled porous carbon cathode material for zinc-ion hybrid capacitors

Xiaoyi Pan, Qian Li, Tongde Wang, Tie Shu and Yousheng Tao*

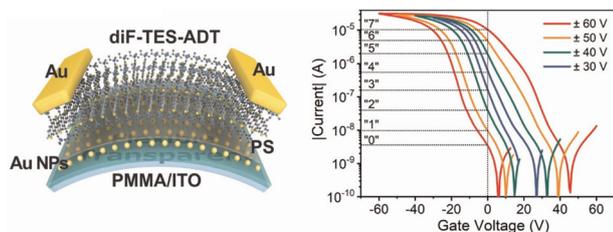
3714



Giant intrinsic piezoelectricity in 2D hybrid organic–inorganic perovskites $[C_6H_{11}NH_3]_2MX_4$ (M = Ge, Sn, Pb; X = Cl, Br, I)

Qiaoya Lv, Jian Qiu, Quan Wen,* Da Li, Jie Liu, Dongling Li and Xingquan Yuan

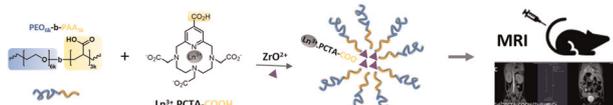
3721



A floating-gate field-effect transistor memory device based on organic crystals with a built-in tunneling dielectric by a one-step growth strategy

Zichen Chen, Shuai Chen,* Tianhao Jiang, Shuang Chen, Ruofei Jia, Yanling Xiao, Jing Pan, Jiansheng Jie and Xiujuan Zhang*

3729



Simple hybrid polymeric nanostructures encapsulating macro-cyclic Gd/Eu based complexes: luminescence properties and application as MRI contrast agent

Marjorie Yon, Lucie Esmangard, Morgane Enel, Franck Desmoulin, Carine Pestourie, Nadine Leygue, Christophe Mingotaud, Chantal Galaup* and Jean-Daniel Marty*

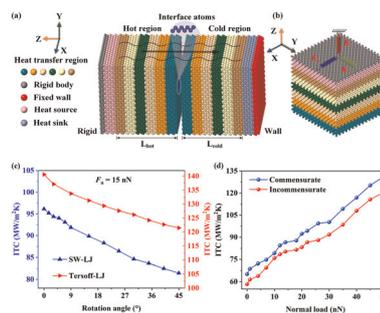


PAPERS

3738

Regulating interfacial thermal conductance with commensurate–incommensurate transitions at atomic-scale silicon/silicon interfaces

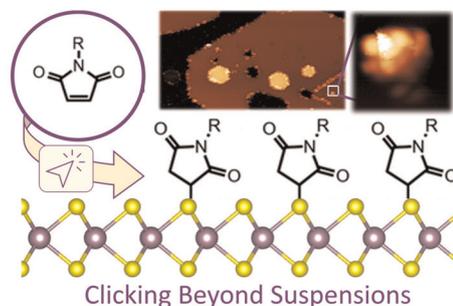
Yun Dong,* Yusong Ding, Yi Tao, Fangming Lian and Weibin Hui



3749

Clicking beyond suspensions: understanding thiol–ene chemistry on solid-supported MoS₂

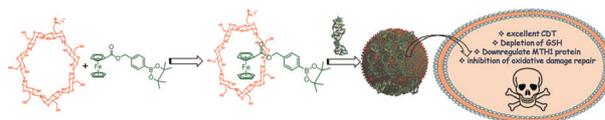
Miriam C. Rodríguez González, Iván M. Ibarburu, Clara Rebanal, Manuel Vázquez Sulleiro, Rahul Sasikumar, Alicia Naranjo, Cosme G. Ayani, Manuela Garnica, Fabián Calleja, Emilio M. Pérez,* Amadeo L. Vázquez de Parga* and Steven De Feyter*



3755

Multifunctional siRNA/ferrocene/cyclodextrin nanoparticles for enhanced chemodynamic cancer therapy

Gowtham Raj, D. S. Vasudev, Sarah Christopher, Anupama Babulal, P. Harsha, Soumakanya Ram, Mehul Tiwari, Markus Sauer and Reji Varghese*



CORRECTION

3764

Correction: High-performance p–i–n perovskite photodetectors and image sensors with long-term operational stability enabled by a corrosion-resistant titanium nitride back electrode

Tian Sun, Tong Chen, Jiahao Chen, Qiang Lou, Zihao Liang, Guijun Li,* Xiaoyun Lin, Guoshen Yang and Hang Zhou*



RETRACTION

3765

Retraction: An MSN-PEG-IP drug delivery system and IL13R α 2 as targeted therapy for glioma

Jinlong Shi, Shiqiang Hou, Jianfei Huang, Shanshan Wang, Wei Huan, Chuanjun Huang, Xiaojiang Liu, Rui Jiang, Wenbo Qian, Jingjing Lu, Xiubing Wang, Wei Shi,* Rongqin Huang* and Jian Chen*

