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See Tao Chen, Zhan Yang *et al.*, pp. 19499–19513.

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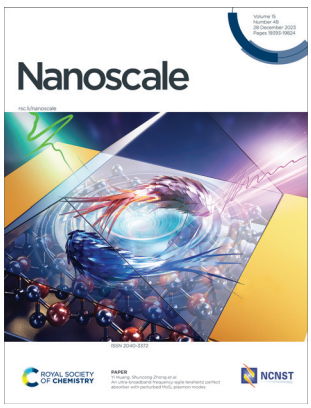

Inside cover
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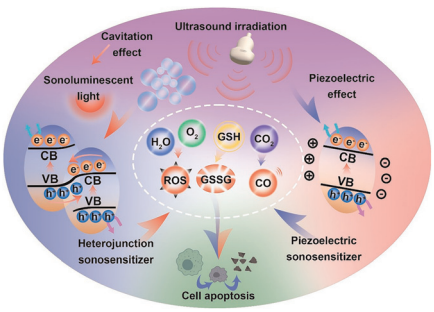
REVIEWS

19407

Sonocatalytic cancer therapy: theories, advanced catalysts and system design

Ruiyan Li, Xuan Wang, Jiacheng Shi, Yong Kang* and Xiaoyuan Ji*



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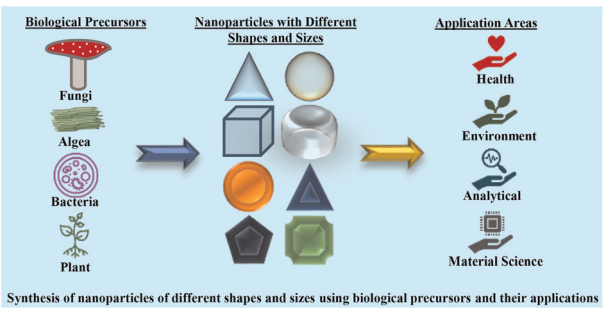
Biogenic synthesis of novel nanomaterials and their applications

Dotse Selali Chormey, Buse Tuğba Zaman, Tülay Borahan Kustanto, Sezin Erarpat Bodur, Süleyman Bodur, Zeynep Tekin, Omid Nejati and Sezgin Bakırdere*



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MINIREVIEW

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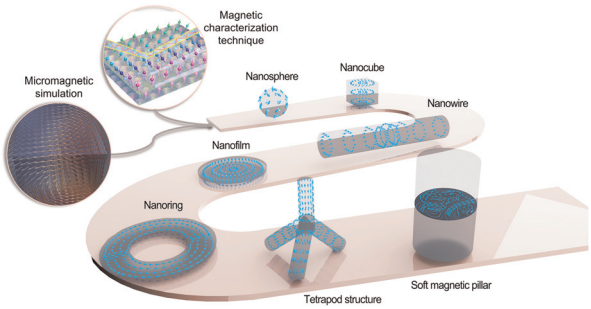
Magnetic characterization techniques and micromagnetic simulations of magnetic nanostructures: from zero to three dimensions

Xin Li, Zhaolian Wang, Zhongyun Lei, Wei Ding, Xiao Shi, Jujian Yan and Jiangang Ku*



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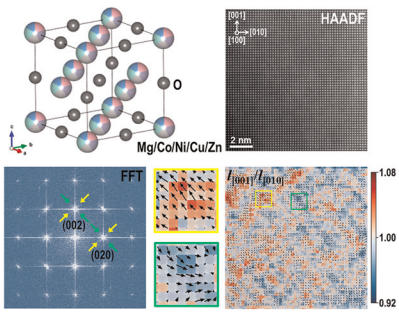
Sub-Ångstrom-scale structural variations in high-entropy oxides

Hanbin Gao, Ning Guo, Yue Gong, Lu Bai, Dongwei Wang and Qiang Zheng*



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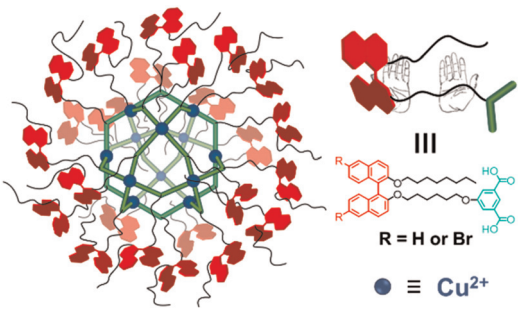
Chiral metal–organic cages decorated with binaphthalene moieties

Cheng Huang, Jiajia Li, Xinyuan Zhu and Youfu Wang*



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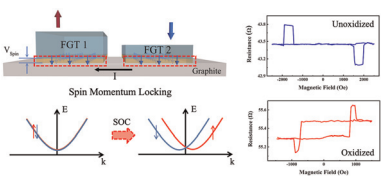
Tunable asymmetric magnetoresistance in an Fe_3GeTe_2/graphite/Fe_3GeTe_2 lateral spin valve

Xiangyu Zeng, Ge Ye, Fazhi Yang, Qikai Ye, Liang Zhang, Boyang Ma, Yulu Liu, Mengwei Xie, Yan Liu,* Xiaozhi Wang,* Yue Hao and Genquan Han



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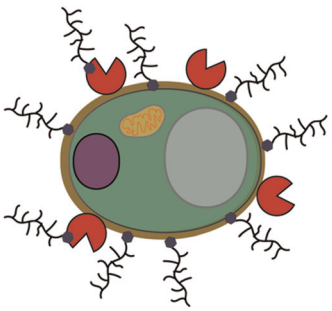

Self-decorating cells *via* surface-initiated enzymatic controlled radical polymerization

Andrea Belluati,* Dominic Happel, Malte Erbe, Nicole Kirchner, Anna Szelwicka, Adrian Bloch, Valeria Berner, Andreas Christmann, Brigitte Hertel, Raheleh Pardehkhorram, Amin Reyhani, Harald Kolmar and Nico Bruns*

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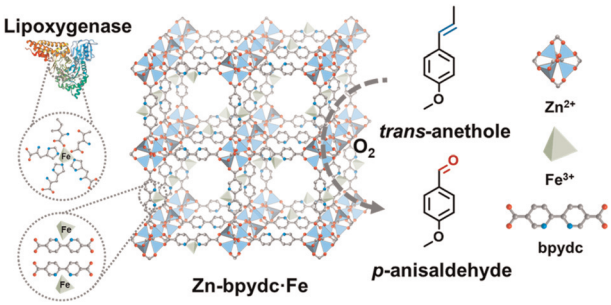

Iron-incorporated metal–organic frameworks for oxidative cleavage of *trans*-anethole to *p*-anisaldehyde

Jun Xiong, Xin Yuan, Min-Hua Zong, Xiaoling Wu* and Wen-Yong Lou*

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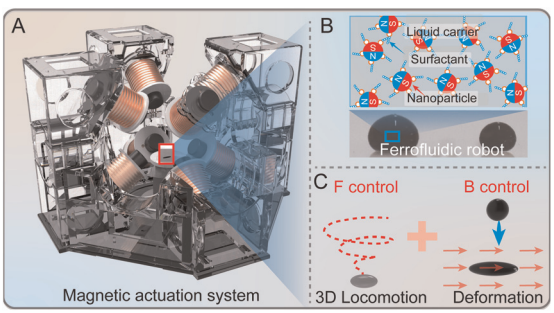

Combined three dimensional locomotion and deformation of functional ferrofluidic robots

Xinjian Fan, Yunfei Zhang, Zhengnan Wu, Hui Xie, Lining Sun, Tao Chen* and Zhan Yang*

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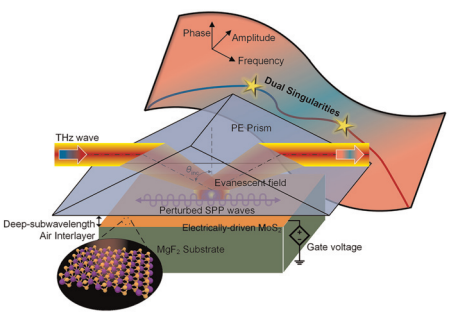

An ultra-broadband frequency-agile terahertz perfect absorber with perturbed MoS_2 plasmon modes

Yujie Zhong, Yi Huang,* Shuncong Zhong,* Tingting Shi, Fuwei Sun, Tingling Lin, Qiuming Zeng, Ligang Yao and Xuefeng Chen

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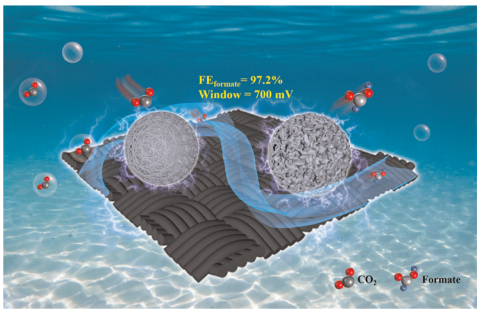
Active-site stabilized Bi metal–organic framework-based catalyst for highly active and selective electroreduction of CO_2 to formate over a wide potential window

Leliang Cao, Jie Huang, Xueying Wu, Ben Ma, Qingqing Xu, Yuanhong Zhong,* Ying Wu,* Ming Sun and Lin Yu*



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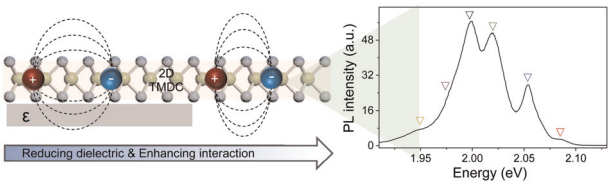
Enhanced interactions of excitonic complexes in free-standing WS_2

Xueqian Sun, Zhuoyuan Lu and Yuerui Lu*



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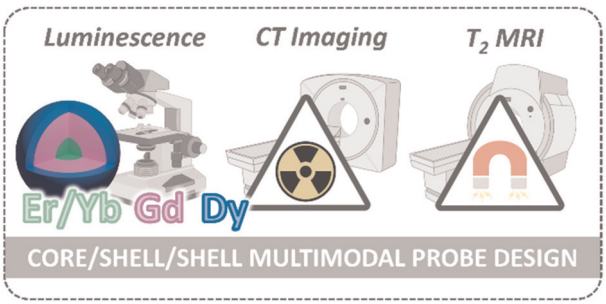
Core–multi-shell design: unlocking multimodal capabilities in lanthanide-based nanoparticles as upconverting, T_2-weighted MRI and CT probes

Nan Liu, Christian Homann, Samuel Morfin, Meghana S. Kesanakurti, Nicholas D. Calvert, Adam J. Shuhendler, Tom Al and Eva Hemmer*



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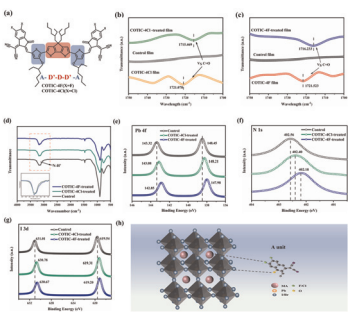
Stable and efficient perovskite solar cells *via* hydrogen bonding and coordination

Tianrui Li, Tao Zhu,* Xiyao Zhang, Haorui Tang, Kai Zhang, Xing Zhu, Shaoyuan Li, Wenhui Ma and Jie Yu*



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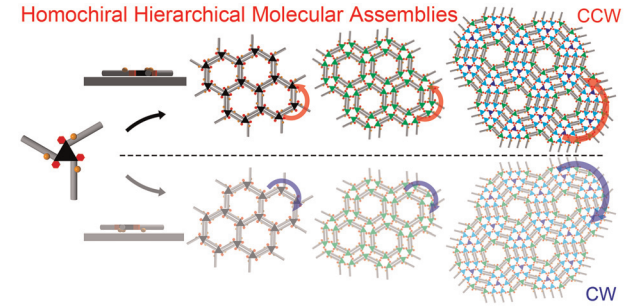

Homochiral hierarchical molecular assemblies through dynamic combination of conformational states of a single chiral building block at the liquid/solid interface

Matsuhiro Maeda, Kazuya Sato, Steven De Feyter and Kazukuni Tahara*

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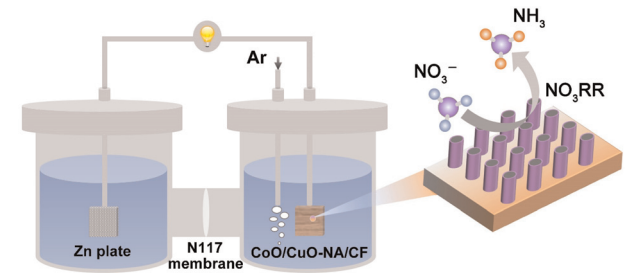

Electrocatalytic nitrate-to-ammonia conversion on CoO/CuO nanoarrays using Zn–nitrate batteries

Shanshan Chen, Gaocan Qi,* Ruilian Yin, Qian Liu, Ligang Feng, Xincai Feng, Guangzhi Hu, Jun Luo, Xijun Liu* and Wenxian Liu*

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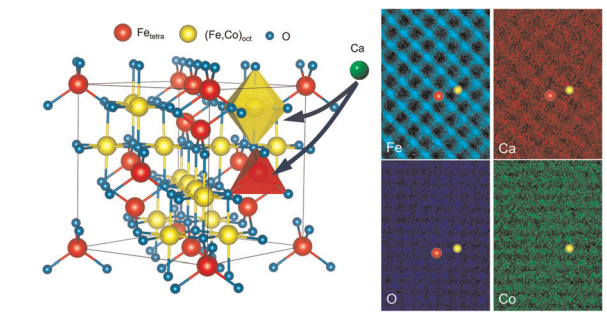

Atomic-scale observation of calcium occupation in spinel cobalt ferrite towards the regulation of intrinsic magnetic properties

Guohua Bai, Weijia Zhong, Zhenhua Zhang,* Sateesh Bandaru, Xiuyuan Fan, Xiaolian Liu and Xuefeng Zhang*

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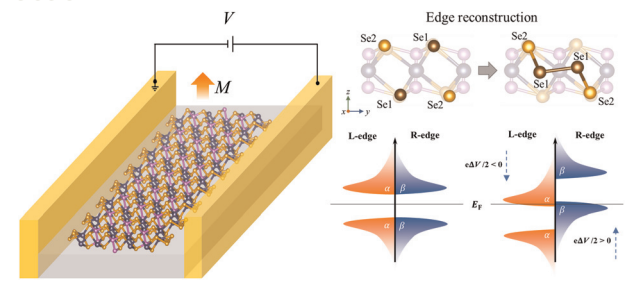

Electrically induced net magnetization in $FePSe_3$ nanoribbons: the role of edge reconstructions

Wenqi Zhang, Weifeng Xie, Bin Shao* and Xu Zuo*

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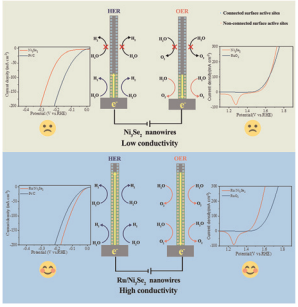
Exceptional green hydrogen production performance of a ruthenium-modulated nickel selenide

Rong Li, Lanli Chen, Huaming Zhang,* Muhammad Humayun, Junhong Duan, Xuefei Xu, Yanjun Fu, Mohamed Bououdina and Chundong Wang*



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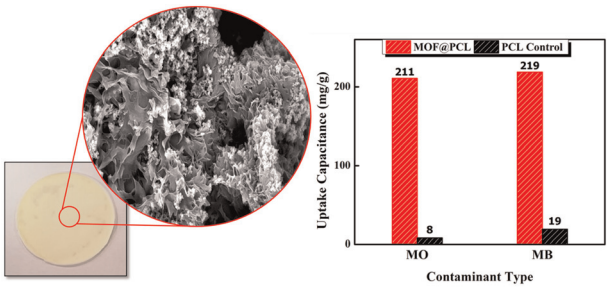
Durable and recyclable MOF@polycaprolactone mixed-matrix membranes with hierarchical porosity for wastewater treatment

Amal Hani, Rana R. Haikal,* Worood A. El-Mehalmey, Youssef Safwat and Mohamed H. Alkordi



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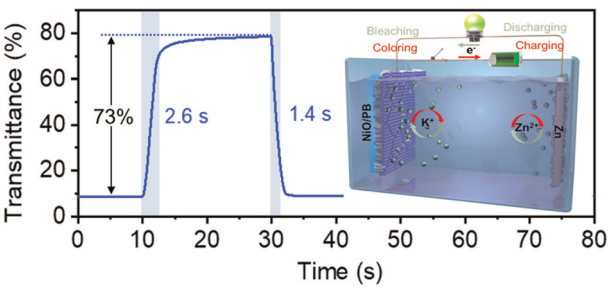
Transparent metal oxide interlayer enabling durable and fast-switching zinc anode-based electrochromic devices

Bing Xu, Jingwei Chen,* Ping Li, Yujia Ouyang, Yu Ma, Huanlei Wang* and Haizeng Li*



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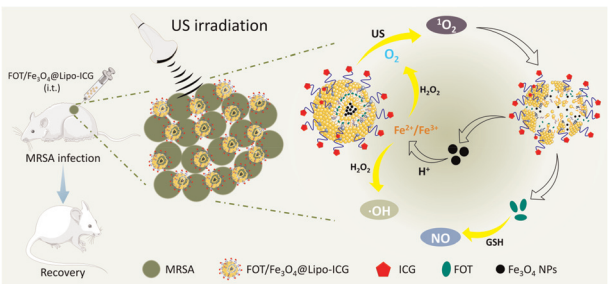
An ultrasound-controllable ROS-responsive nanoplatform for O_2 and NO generation to enhance sonodynamic therapy against multidrug-resistant bacterial infections

Jingyi Zhang, Lin Zhang, Yuhan Zhang, Rong Ju and Guoqing Wei*



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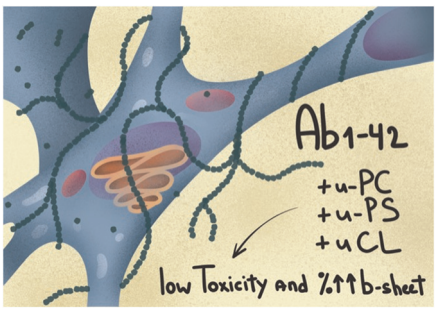
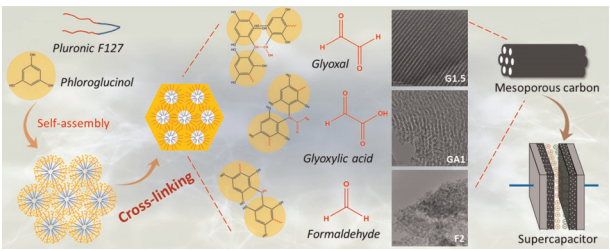


Nano-infrared analysis of amyloid β_{1-42} fibrils formed in the presence of lipids with unsaturated fatty acids

Kiryl Zhaliazka and Dmitry Kurouski*

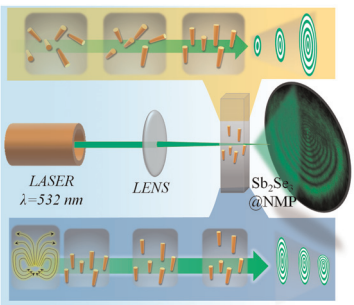
19658



Advancing mesoporous carbon synthesis for supercapacitors: a systematic investigation of cross-linking agent effects on pore structure and functionality

Yaoguang Song, Xiaolei Zhang,* Peter A. A. Klusener and Peter Nockemann*

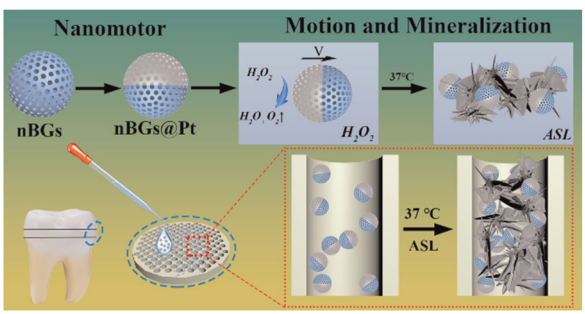
19671



Strong non-linear optical response of Sb_2Se_3 nanorods in a liquid suspension based on spatial self-phase modulation and their all-optical photonic device applications

Nabanita Sen, Nabamita Chakraborty, Biswajit Das and Kalyan Kumar Chattopadhyay*

19681



Self-propelled bioglass janus nanomotors for dentin hypersensitivity treatment

Wei Wu, Hang Chi, Qianyang Zhang, Ce Zheng, Narisu Hu,* Yingjie Wu* and Jiaxin Liu*

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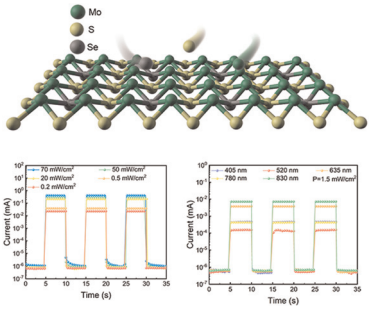
19691

An ultrafast and self-powered MoS_xSe_{2-x}/Si photodetector with high light-trapping structures and a SiO_x interface layer

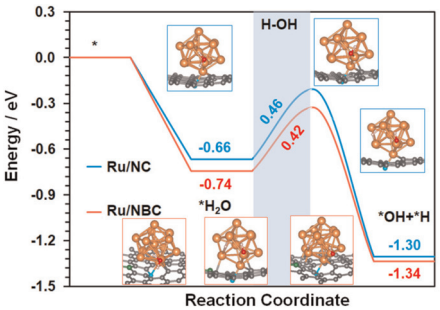
Zhen Yue, Honglie Shen,* Chen Wang, Yajun Xu, Jinjie Zheng, Yufang Li, Jingzhe Zhang, Jianian Chen, Hang Bai, Hechao Li, Jiuchuan Zeng and Long Wang



19703

Ru nanoclusters anchored on boron- and nitrogen-doped carbon for a highly efficient hydrogen evolution reaction in alkaline seawater

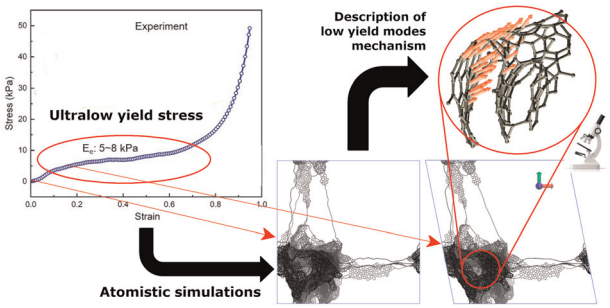
Binbin Jiang, Zhen Wang, Hui Zhao, Xie Wang, Xiaoxia Mao, Aijian Huang,* Xuehua Zhou, Kui Yin,* Kefa Sheng and Junwei Wang*



19709

Atomistic mechanisms underlying plastic flow at ultralow yield stress in ductile carbon aerogels

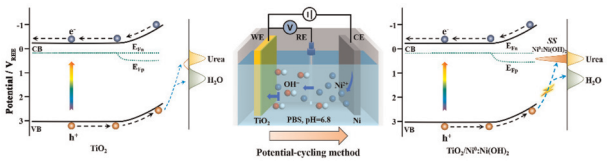
Giorgio Conter, Kailu Xiao, Xianqian Wu, William A. Goddard, III* and Alessandro Fortunelli*



19717

Tailoring the density of states of $Ni(OH)_2$ with Ni^0 towards solar urea wastewater splitting

Li Zou, Wenyan Tao, Jing Huang, Shuxiang Wang, Yijia Zhang, Keqiang Han, Yi Hu, Haoyan Gao, Pingping Yang and Jiale Xie*



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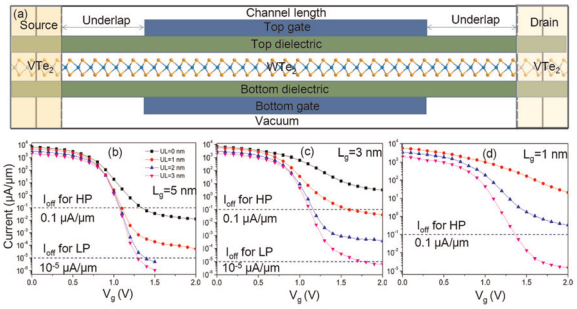
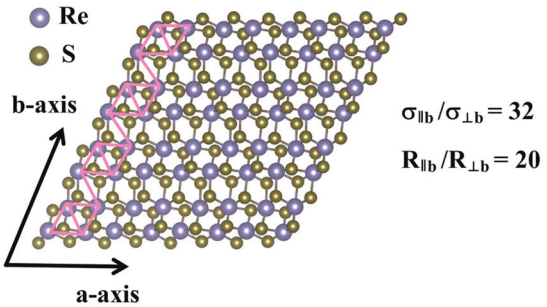
19726



The device performance limit of in-plane monolayer VTe_2/WTe_2 heterojunction-based field-effect transistors

Xingyi Tan, Qiang Li, Dahua Ren and Hua-Hua Fu*

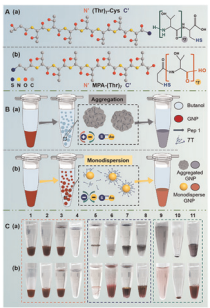
19735



Electrical and optoelectronic anisotropy and surface electron accumulation in ReS_2 nanostructures

Hemanth Kumar Bangolla, Muhammad Yusuf Fakhri, Ching-Hsuan Lin, Cheng-Maw Cheng, Yi-Hung Lu, Tsu-Yi Fu, Pushpa Selvarasu, Rajesh Kumar Ulaganathan, Raman Sankar and Ruei-San Chen*

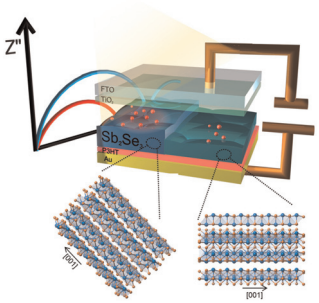
19746



Quantified instant conjugation of peptides on a nanogold surface for tunable ice recrystallization inhibition

Shixuan Yang, Zhongxiang Ding, Leiming Chu, Mengke Su and Honglin Liu*

19757



Impedance spectroscopy of Sb_2Se_3 photovoltaics consisting of $(Sb_4Se_6)_n$ nanoribbons under light illumination

Jaemin Park, Thomas P. Shalvey, Thomas Moehl, Kyoohee Woo, Jonathan D. Major, S. David Tilley and Wooseok Yang*

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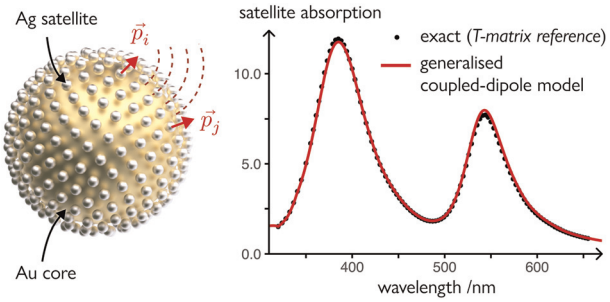
19767

Generalised coupled-dipole model for core-satellite nanostructures

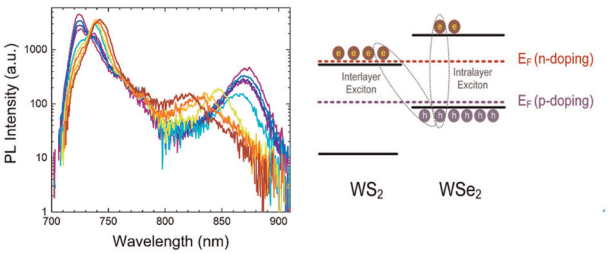
Stefania Glukhova, Eric C. Le Ru and Baptiste Auguié*



19777

Probing the interlayer excitation dynamics in WS_2/WSe_2 heterostructures with broadly tunable pump and probe energies

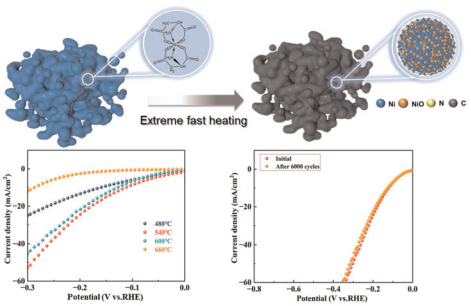
Anran Wang, Wendian Yao, Zidi Yang, Dingqi Zheng, Songlin Li, Yi Shi, Dehui Li and Fengqiu Wang*



19784

Ni/NiO@NC as a highly efficient and durable HER electrocatalyst derived from nickel(II) complexes: importance of polydentate amino-acid ligands

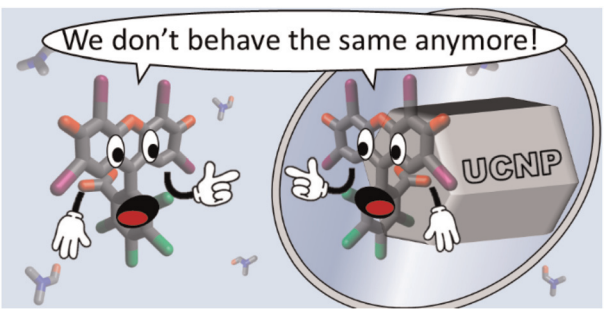
Xu Yang, Mengxue Liu, Fang Cui,* Qinghai Ma and Tieyu Cui*



19792

Synergistic or antagonistic effect of lanthanides on Rose Bengal photophysics in upconversion nanohybrids?

Juan Ferrera-González, María González-Béjar* and Julia Pérez-Prieto*



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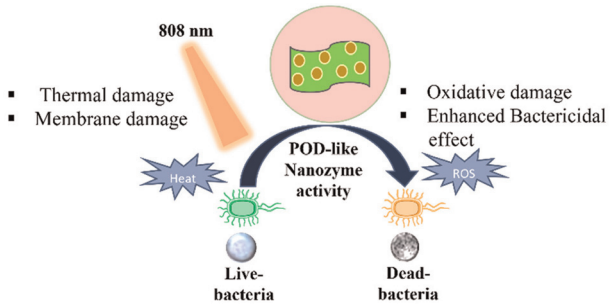
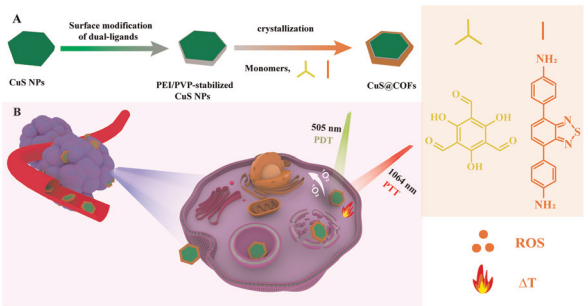
19801



2D-MoS_2-supported copper peroxide nanodots with enhanced nanozyme activity: application in antibacterial activity

Archana Kumari, Jagabandhu Sahoo and Mrinmoy De*

19815



Dual-wavelength responsive CuS@COF nanosheets for high-performance photothermal/photodynamic combination treatments

Qian An, Shengze Su, Wei Hu, Yanying Wang, Tao Liang,* Xianghong Li* and Chunya Li*

CORRECTIONS

19820

Correction: Pursuing colloidal diamonds

Łukasz Baran,* Dariusz Tarasewicz, Daniel M. Kamiński and Wojciech Rżysko

19821

Correction: MXenes *vs.* clays: emerging and traditional 2D layered nanoarchitectonics

Eduardo Ruiz-Hitzky* and Cristina Ruiz-Garcia

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