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See Milad Abolhasani *et al.*, pp. 580–591.

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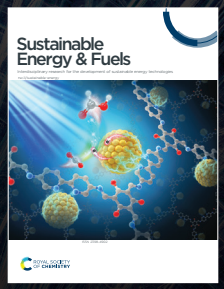

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COMMUNICATIONS

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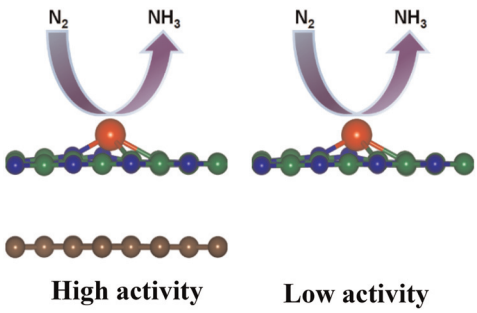
Single-atom catalysts supported on a hybrid structure of boron nitride/graphene for efficient nitrogen fixation *via* synergistic interfacial interactions

Mohammad Zafari, Rohit Anand, Arun S. Nissimagoudar, Miran Ha, Geunsik Lee* and Kwang S. Kim



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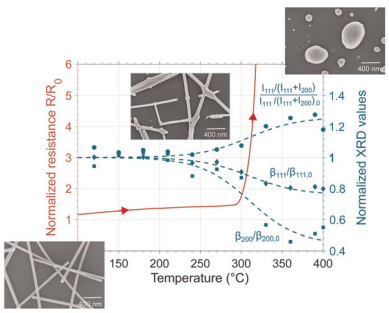
Laetitia Bardet, Hervé Roussel, Stefano Saroglia, Masoud Akbari, David Muñoz-Rojas, Carmen Jiménez, Aurore Denneulin and Daniel Bellet



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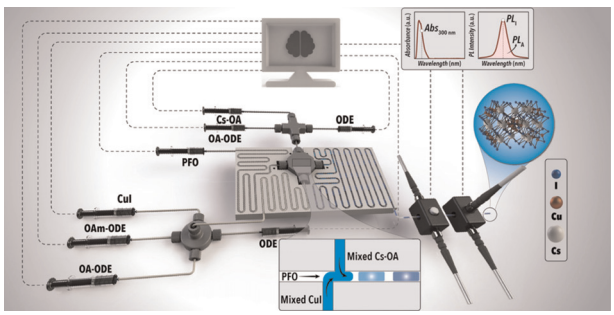
Autonomous nanomanufacturing of lead-free metal halide perovskite nanocrystals using a self-driving fluidic lab

Sina Sadeghi, Fazel Bateni, Taekhoon Kim, Dae Yong Son, Jeffrey A. Bennett, Negin Orouji, Venkat S. Punati, Christine Stark, Teagan D. Cerra, Rami Awad, Fernando Delgado-Licona, Jinge Xu, Nikolai Mukhin, Hannah Dickerson, Kristofer G. Reyes and Milad Abolhasani



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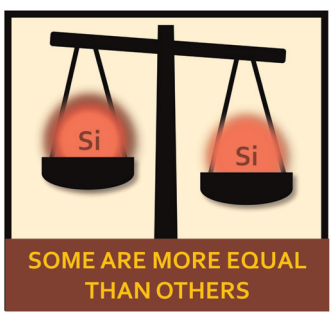
Not all silicon quantum dots are equal: photostability of silicon quantum dots with and without a thick amorphous shell

I Teng Cheong, LiYifan Yang Szepesvari, Chuyi Ni, Cole Butler, Kevin M. O'Connor, Riley Hooper, Alkiviathes Meldrum and Jonathan G. C. Veinot



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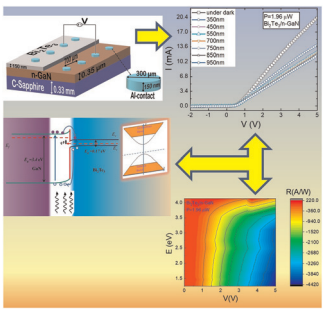

Aberrant photoelectric effect in the topological insulator/n-GaN heterojunction (Bi_2Te_3/n-GaN) under unpolarized illumination

Faizan Ahmad, Kavindra Kandpal, Roshani Singh, Rachana Kumar and Pramod Kumar

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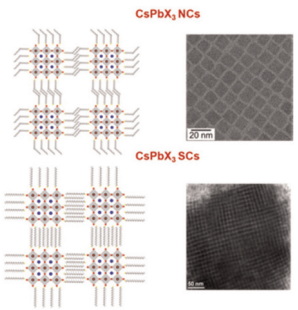

Direct synthesis of $CsPbX_3$ perovskite nanocrystal assemblies

Chujie Wang, Sri K. Matta, Chun Kiu Ng, Chang Cao, Manoj Sharma, Anthony S. R. Chesman, Salvy P. Russo and Jacek J. Jasieniak

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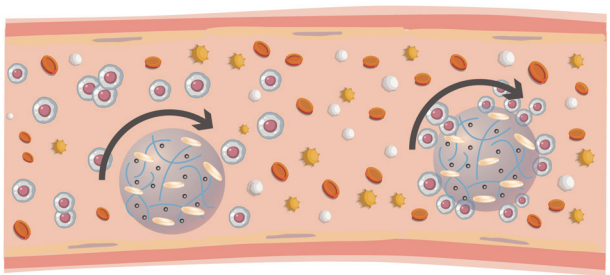

An extracellular matrix-mimicking magnetic microrobot for targeted elimination of circulating cancer cells

Jing Huang, Yuan Liu, Jiandong Wu, Fuping Dong, Chu Liu, Jiawei Luo, Xiangchao Liu, Ning Wang, Lei Wang and Haifeng Xu

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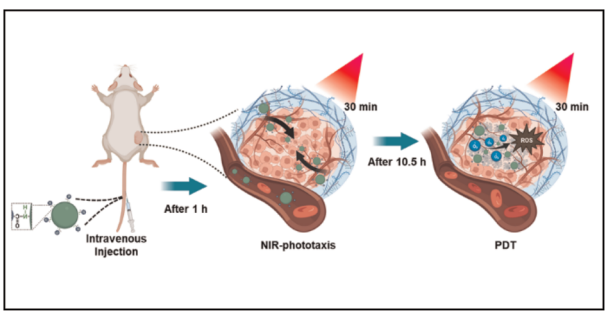

A NIR-driven green affording-oxygen microrobot for targeted photodynamic therapy of tumors

Lishan Zhang, Xiaoting Zhang, Hui Ran, Ze Chen, Yicheng Ye, Jiamiao Jiang, Ziwei Hu, Miral Azechi, Fei Peng, Hao Tian, Zhili Xu* and Yingfeng Tu

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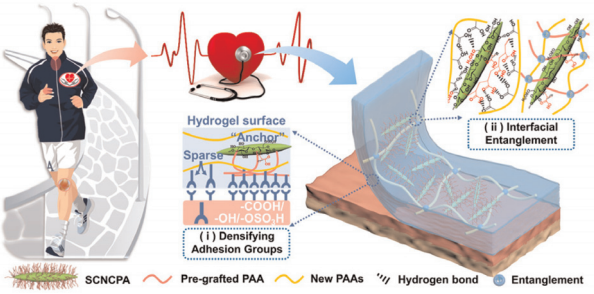
Fabrication of a tough, long-lasting adhesive hydrogel patch *via* the synergy of interfacial entanglement and adhesion group densification

Yunjie Lu, Zhaohui Li, Zewei Li, Shihao Zhou, Ning Zhang, Jianming Zhang and Lu Zong



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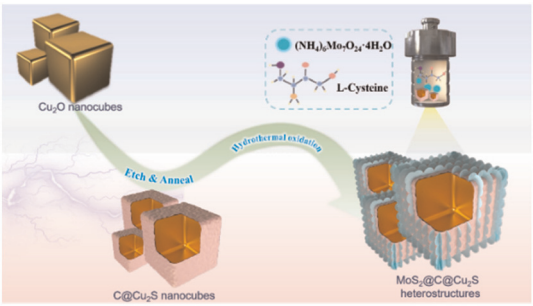
Yujin Li, Jing Xu, Xinqi Luo, Futing Wang, Zhong Dong, Ke-Jing Huang, Chengjie Hu, Mengyi Hou and Ren Cai



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Recording physiological and pathological cortical activity and exogenous electric fields using graphene microtransistor arrays *in vitro*

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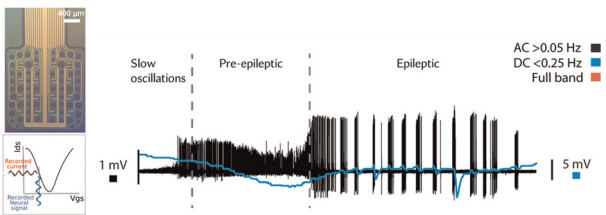

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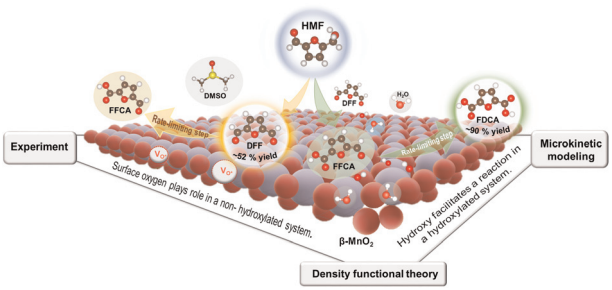

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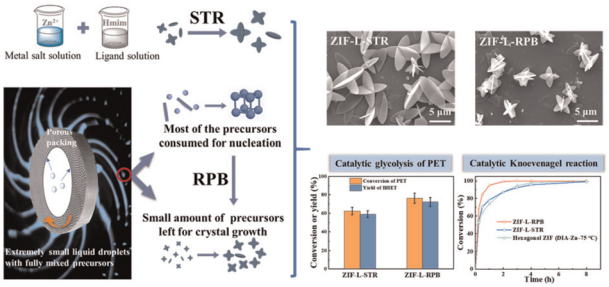

The controllable and efficient synthesis of two-dimensional metal–organic framework nanosheets for heterogeneous catalysis

Ling-Xia Yun, Cong Zhang, Xin-Ran Shi, Yan-Jun Dong, Hang-Tian Zhang, Zhi-Gang Shen and Jie-Xin Wang

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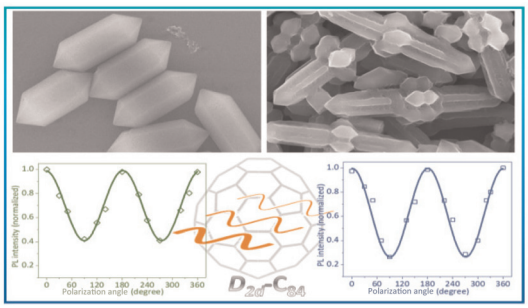

Crystalline architectures of C_{84} with tunable morphology and linearly polarized red emission

Feng Wang, Botao Zhu, Jie Xiong, Shuo Wu, Jiaxin Sun, Hailin Cong* and Lai Feng

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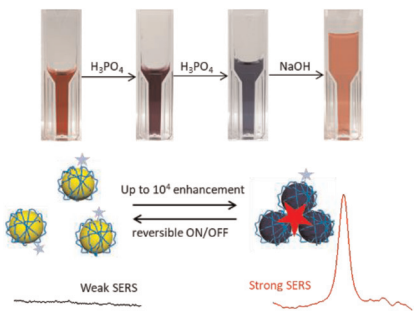

Strongly coupled plasmonic metal nanoparticles with reversible pH-responsiveness and highly reproducible SERS in solution

Zichao Wei, Audrey Vandergriff, Chung-Hao Liu, Maham Liaqat, Mu-Ping Nieh, Yu Lei and Jie He

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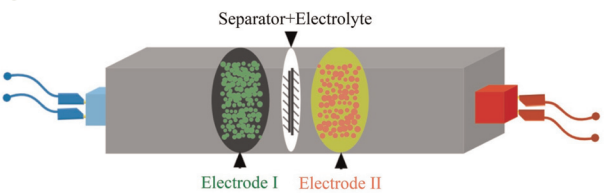

Unlocking the full potential of citric acid-synthesized carbon dots as a supercapacitor electrode material *via* surface functionalization

Melis Özge Alaş Çolak, Ahmet Güngör, Merve Buldu Akturk, Emre Erdem* and Rükan Genç

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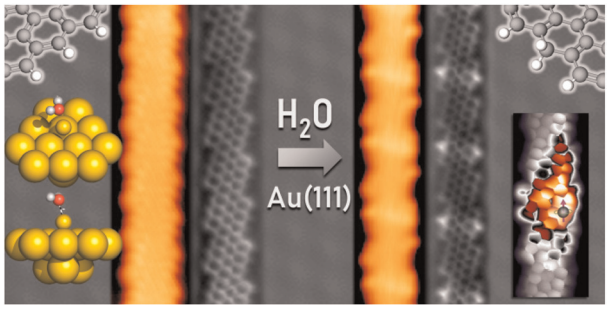
The effect of water on gold supported chiral graphene nanoribbons: rupture of conjugation by an alternating hydrogenation pattern

Alejandro Berdonces-Layunta, Adam Matěj, Alejandro Jiménez-Martín, James Lawrence, Mohammed S. G. Mohammed, Tao Wang, Benjamin Mallada, Bruno de la Torre, Adrián Martínez, Manuel Vilas-Varela, Reed Nieman, Hans Lischka, Dana Nachtigallová, Diego Peña, Pavel Jelínek* and Dimas G. de Oteyza



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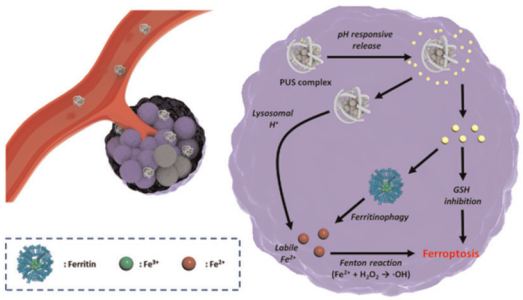
A polymeric iron oxide nanocomplex loaded with sulfasalazine: an approach for inducing ferritinophagy-assisted ferroptosis for anti-cancer therapy

Junha Lim, Junseok Lee, Yeonju Boo and Won Jong Kim



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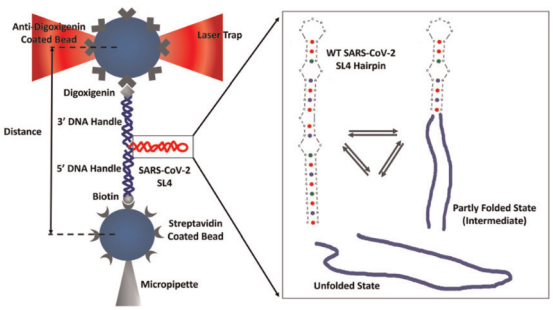
Exploring the conformational dynamics of the SARS-CoV-2 SL4 hairpin by combining optical tweezers and base analogues

Vinoth Sundar Rajan, Anna Wypijewska del Nogal, Sune Levin, L. Marcus Wilhelmsson* and Fredrik Westerlund



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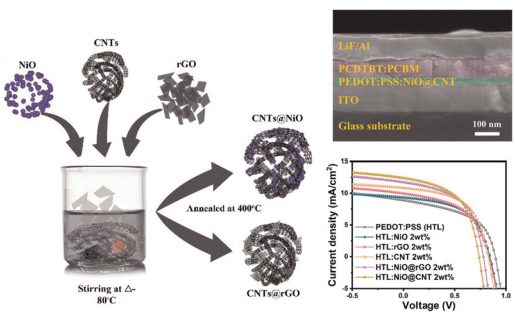
Metal oxide-embedded carbon-based materials for polymer solar cells and X-ray detectors

Sikandar Aftab, Hailiang Liu, Dhanasekaran Vikraman, Sajjad Hussain, Jungwon Kang* and Abdullah A. Al-Kahtani



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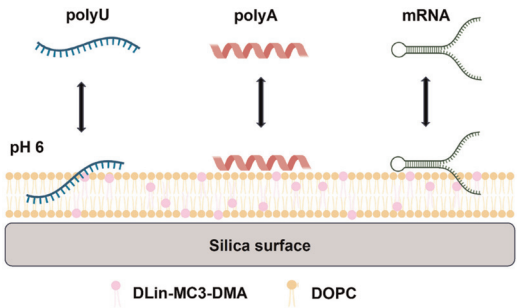

On the interactions between RNA and titrateable lipid layers: implications for RNA delivery with lipid nanoparticles

Jennifer Gilbert, Inna Ermilova, Marco Fornasier, Maximilian Skoda, Giovanna Fragneto, Jan Swenson and Tommy Nylander

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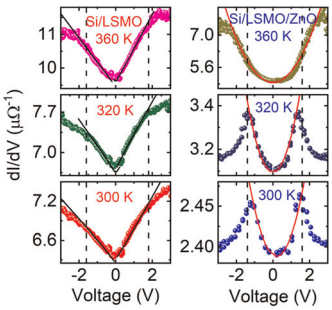

Reformation of $La_{0.7}Sr_{0.3}MnO_3$ properties by using ZnO in $La_{0.7}Sr_{0.3}MnO_3$-ZnO heterostructures grown on (001) oriented Si

Bibekananda Das and Prahallad Padhan

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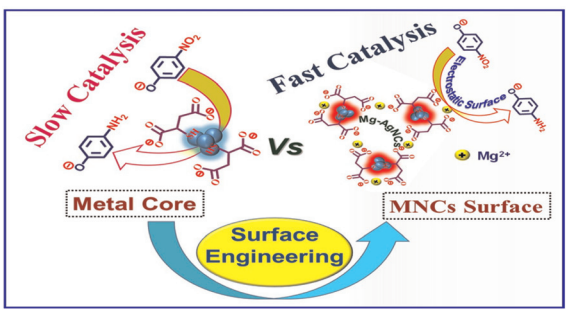

Mechanistic elucidation of the catalytic activity of silver nanoclusters: exploring the predominant role of electrostatic surface

Paritosh Mahato, Shashi Shekhar, Rahul Yadav and Saptarshi Mukherjee

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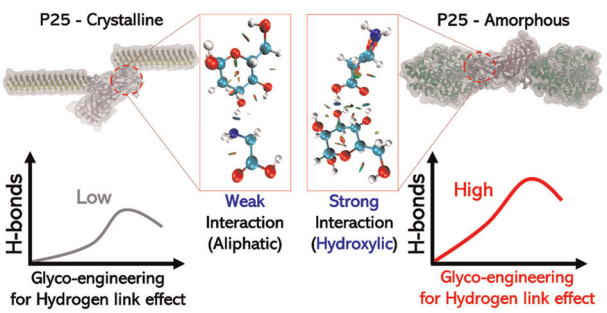

An atomistic scale simulation study of structural properties in the silk–fibrohexamerin complex

Wooboum Park, Taeyoung Yoon, Hyunjoon Chang, Juneseok You* and Sungsoo Na

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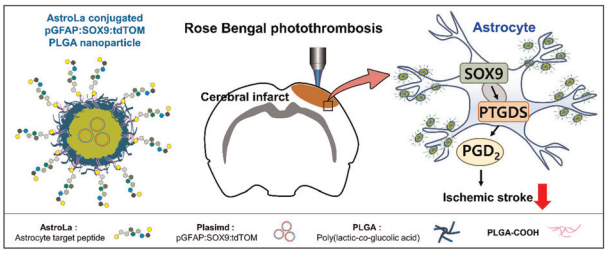
Peptide-mediated targeted delivery of SOX9 nanoparticles into astrocytes ameliorates ischemic brain injury

Hyo Jung Shin, Seung Gyu Choi, Fengrui Qu, Min-Hee Yi, Choong-Hyun Lee, Sang Ryong Kim, Hyeong-Geug Kim, Jaewon Beom, Yoonyoung Yi, Do Kyung Kim, Eun-Hye Joe, Hee-Jung Song, Yonghyun Kim* and Dong Woon Kim



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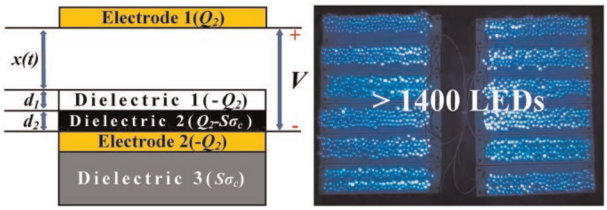
A new triboelectric nanogenerator based on a multi-material stacking structure achieves efficient power conversion from discrete mechanical movement

Jianfeng Luo, Yuxiang Su, Anguo Liu, Guanyu Dai, Xinyao Zhang, Xiaonan Su, Yilei Shao, Zhenhua Li, Xizeng Zhao and Keyang Zhao



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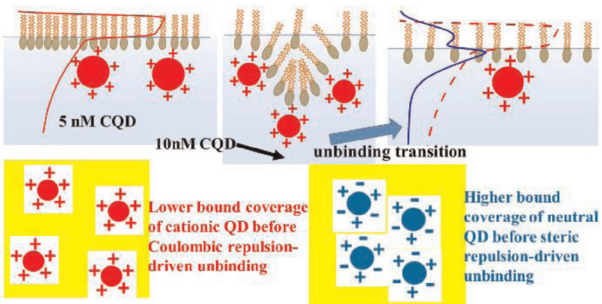
Spontaneous unbinding transition of nanoparticles adsorbing onto biomembranes: interplay of electrostatics and crowding

Anurag Chaudhury, Koushik Debnath, Nikhil R. Jana and Jaydeep K. Basu



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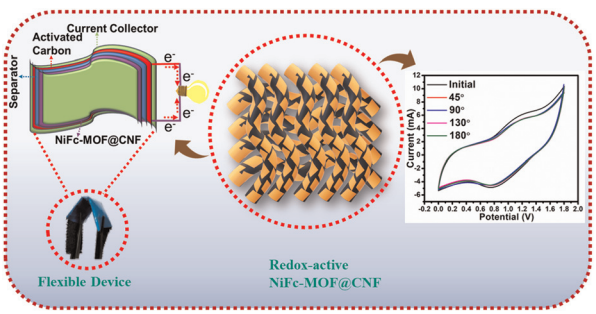
***In situ* growth of a redox-active metal–organic framework on electrospun carbon nanofibers as a free-standing electrode for flexible energy storage devices**

Zahir Abbas, Nissar Hussain, Surender Kumar and Shaikh M. Mobin



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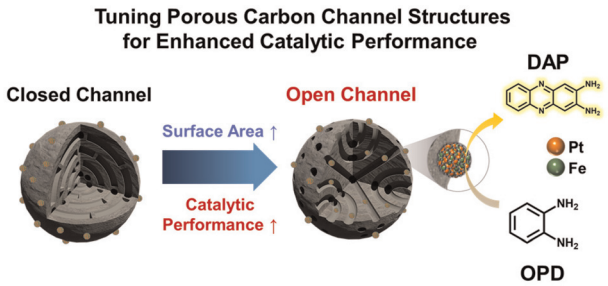

Impact of channel nanostructures of porous carbon particles on their catalytic performance

Hyunkyu Oh, Young Jun Lee, Eun Ji Kim, Jinseok Park, Hee-Eun Kim, Hyunsoo Lee, Hyunjoo Lee and Bumjoon J. Kim

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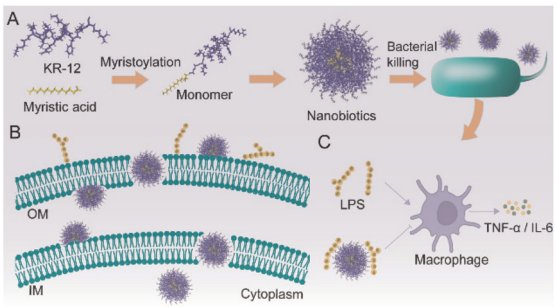

Turning cationic antimicrobial peptide KR-12 into self-assembled nanobiotics with potent bacterial killing and LPS neutralizing activities

Ruyi Lei, Chujun Yang, Yaqi Sun, Dejian Li, Liman Hao, Yang Li, Shuijing Wu, Hui Li, Chao Lan* and Xiangming Fang

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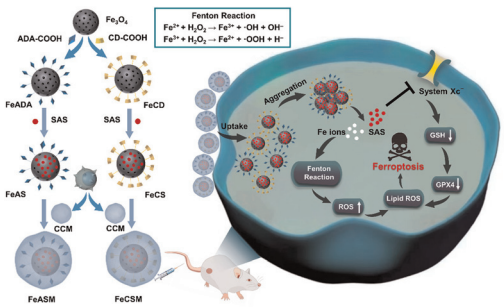

Intracellular self-aggregation of biomimetic Fe_3O_4 nanoparticles for enhanced ferroptosis-inducing therapy of breast cancer

Zhendong Zhang, Beibei Xie, Xiaojie Lu, Lishan Xiong, Xinyuan Li, Yan Zhang, Chunlai Li* and Chenhui Wang

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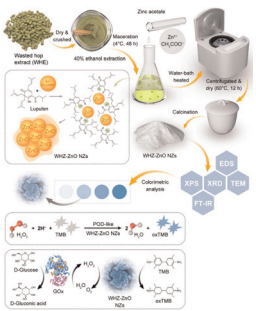

Facile green synthesis of wasted hop-based zinc oxide nanozymes as peroxidase-like catalysts for colorimetric analysis

Pei Liu, Mengdi Liang, Zhengwei Liu, Haiyu Long, Han Cheng, Jiahe Su, Zhongbiao Tan, Xuewen He, Min Sun, Xiangqian Li and Shuai He

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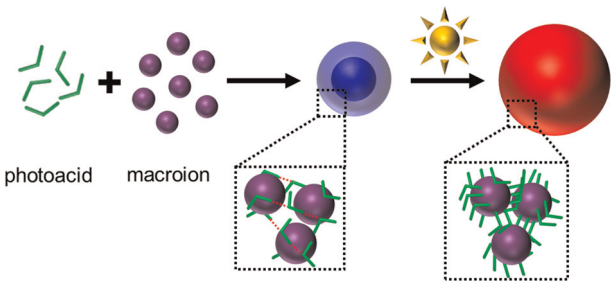
PAPERS

923

Photoacid-macroion assemblies: how photo-excitation switches the size of nano-objects

Alexander Zika, Mohit Agarwal, Wiebke Zika, Dirk M. Guldi, Ralf Schweins and Franziska Gröhn



CORRECTION

941

Correction: Elaborating the interplay between the detecting unit and emitting unit in infrared quantum dot up-conversion photodetectors

Qiulei Xua, Xinxin Yang, Jiao Jiao Liu, Fei Li, Ruiguang Chang, Lei Wang, A Qiang Wang, Zhenghui Wu, Huaibin Shen and Zuliang Du