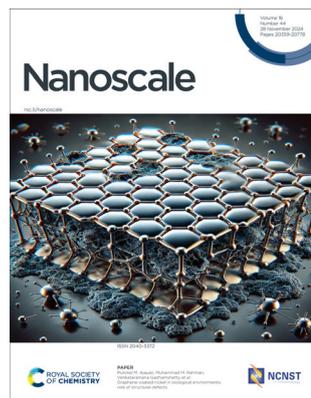


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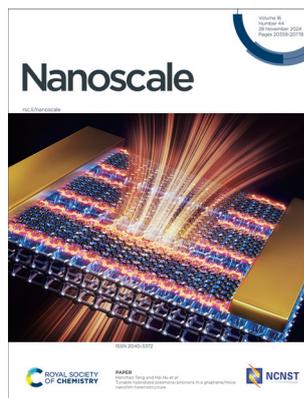
ISSN 2040-3372 CODEN NANOHL 16(44) 20359-20778 (2024)



Cover

See Pulickel M. Ajayan, Muhammad M. Rahman, Venkataramana Gadhamshetty *et al.*, pp. 20510–20521.

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Inside cover

See Hanchao Teng and Hai Hu *et al.*, pp. 20522–20531.

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EDITORIAL

20372

Introduction to celebrating the 10th anniversary of INST Mohali

Amitava Patra and Umesh Waghmare

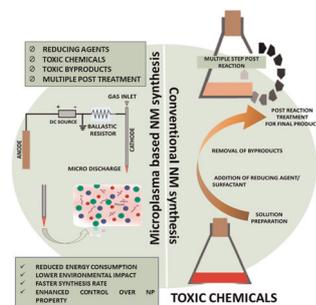


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Perspectives on sustainable and efficient routes of nanoparticle synthesis: an exhaustive review on conventional and microplasma-assisted techniques

Khushboo Shah, Jenish Patel, Sanjeev Kumar, Ratnesh Pandey, Gurupada Maity and Santosh Dubey*



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Fundamental questions
Elemental answers

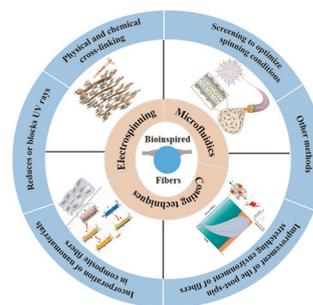


REVIEWS

20405

Durability improvement strategies for wettable fog harvesting devices inspired by spider silk fibers: a review

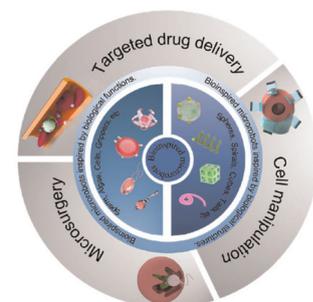
Qiong Wang and Zhiguang Guo*



20434

Bioinspired microrobots and their biomedical applications

Ke Xu,* Gaolong Yuan, Jianchen Zheng, Yuzhao Zhang, Jingang Wang and Hongji Guo*

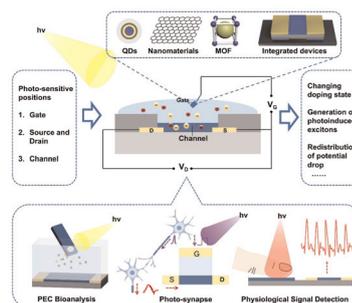


MINIREVIEWS

20451

Photoelectrochemical transistors based on semiconducting polymers: an emerging technology for future bioelectronics

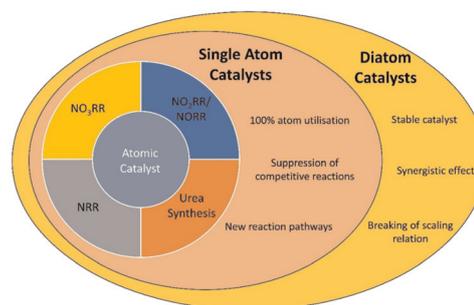
Qingqing Jin, Jinyao Wang, Miao Cheng, Yue Tian, Yifan Xie, Junyang Deng, Hongmei Xiao, Hanlin Wang, Zhenjie Ni, Mengmeng Li* and Ling Li*



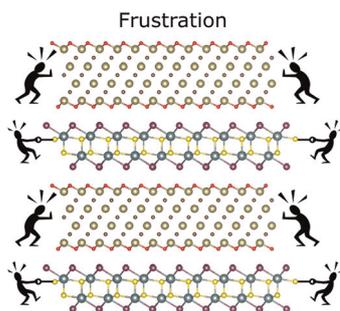
20463

Single and dual-atom catalysts towards electrosynthesis of ammonia and urea: a review

Wenyu Luo, Jiawei Liu, Yue Hu and Qingyu Yan*



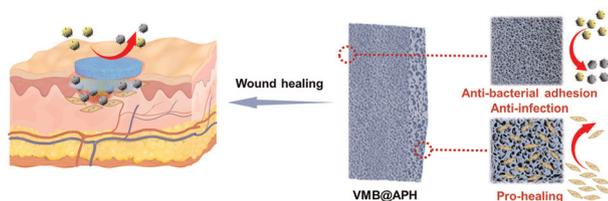
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Frustrated van der Waals heterostructures

Sherif Abdulkader Tawfik

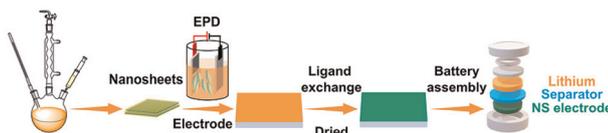
20489



Asymmetric porous hydrogel encapsulating vulcanized molecular brushes with anti-bacterial adhesion, anti-infection, and pro-healing properties towards infected wound treatment

Jinlun Wu, Wenyi He, Ruijun Xu, Yang Li, Dingcai Wu,*
Zifeng Yang* and Yong Li*

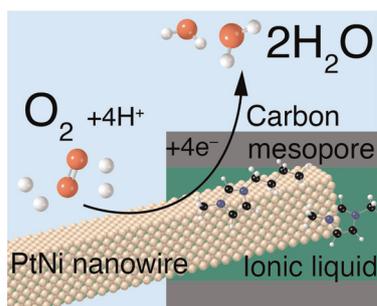
20496



Electrophoretic assisted fabrication of additive-free WS₂ nanosheet anodes for high energy density lithium-ion batteries

Xuan-Manh Pham, Niraj Nitish Patil, Syed Abdul Ahad,
Nilotpal Kapuria, Kwadwo Asare Owusu, Hugh Geaney,
Shalini Singh and Kevin M. Ryan*

20505



Co-presence of PtNi nanowires and ionic liquid in carbon mesopores enhances electrocatalytic oxygen reduction activity

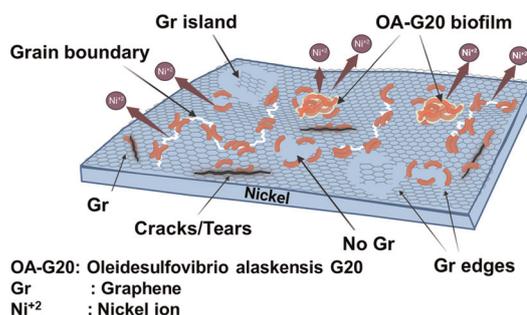
Yuta Kato, Masaru Kato,* Shun Saito, Yu Zhuang,
Yoshimi Iguchi, Jun Sato, Tasuku Komanoya,
Kentaro Soma, Koshiro Suzuki and Ichizo Yagi*



20510

Graphene-coated nickel in biological environments: role of structural defects

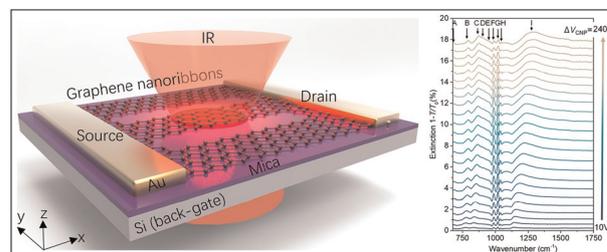
Ramesh Devadig, Pawan Sigdel, Md. Hasan-Ur Rahman, Pulickel M. Ajayan,* Muhammad M. Rahman* and Venkataramana Gadhamshetty*



20522

Tunable hybridized plasmons–phonons in a graphene/mica-nanofilm heterostructure

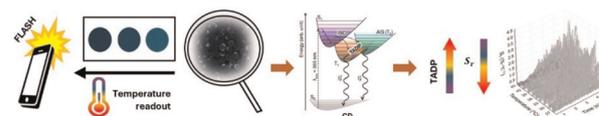
Yaling Qin, Min Liu, Hanchao Teng, Na Chen, Chenchen Wu, Chengyu Jiang, Zhuoxin Xue, Hualong Zhu, Jiayi Gui, Xiang Liu,* Yuchuan Xiao* and Hai Hu*



20532

Time-gated multi-dimensional luminescence thermometry via carbon dots for precise temperature mobile sensing

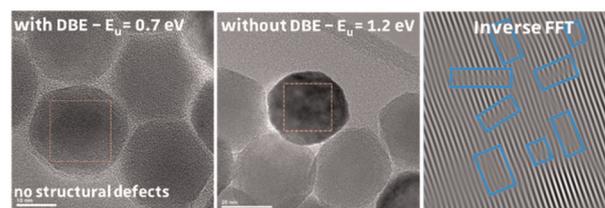
Sílvia F. V. Silva, Gonçalo Figueiredo, Rui F. P. Pereira, Verónica de Zea Bermudez, Lianshe Fu, Paulo S. André, Albano N. Carneiro Neto* and Rute A. S. Ferreira*



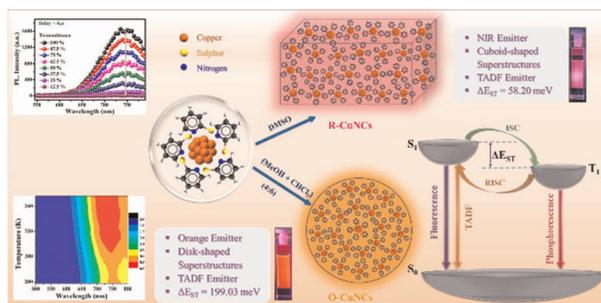
20542

Defects or no defects? Or how to design 20–25 nm spherical iron oxide nanoparticles to harness both magnetic hyperthermia and photothermia

Barbara Freis, Céline Kiefer, Maria de los Angeles Ramirez, Sébastien Harlepp, Damien Mertz, Benoit Pichon, Cristian Iacovita,* Sophie Laurent and Sylvie Begin*



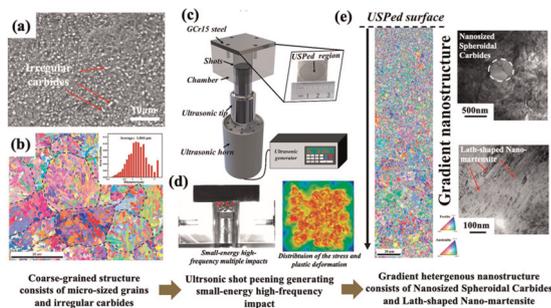
20556



Superstructures of copper nanoclusters as NIR TADF emitters: solvent-dependent optical and morphological modulation

Sameeksha Agrawal, Debangana Shil, Aakash Gupta and Saptarshi Mukherjee*

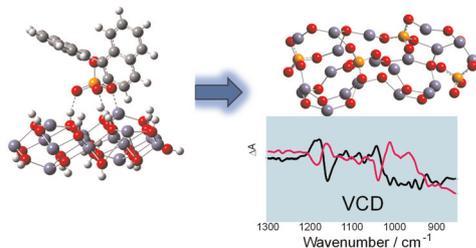
20570



Nanoengineering steel's durability: creating gradient nanostructured spheroidal carbides and lath-shaped nano-martensite via ultrasonic shot peening

Fei Yin,* Yuxuan Yi, Chang Yang and Gary J. Cheng*

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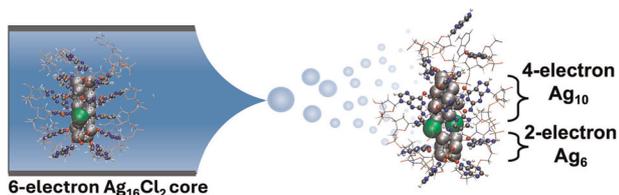


Nanoscale chirality generated in zinc(II) orthophosphate clusters: evidence by vibrational circular dichroism

Sumio Aisawa,* Nami Horiguchi, Chika Chida, Jing Sang, Hidetoshi Hirahara, Akihiko Yamagishi and Hisako Sato*

Nanoscale chirality induced in an inorganic cluster

20596



Fragmentation patterns of DNA-stabilized silver nanoclusters under mass spectrometry

Rweetuparna Guha, Sami Malola, Malak Rafik, Maya Khatun, Anna González-Rosell, Hannu Häkkinen and Stacy M. Copp*

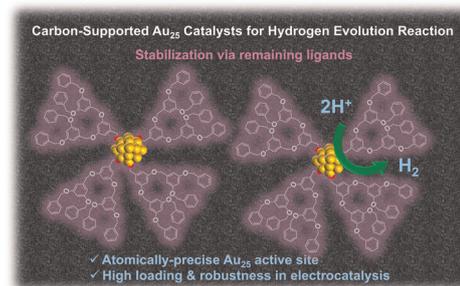


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Carbon-supported Au₂₅ cluster catalysts partially decorated with dendron thiolates: enhanced loading weight and durability for hydrogen evolution reaction

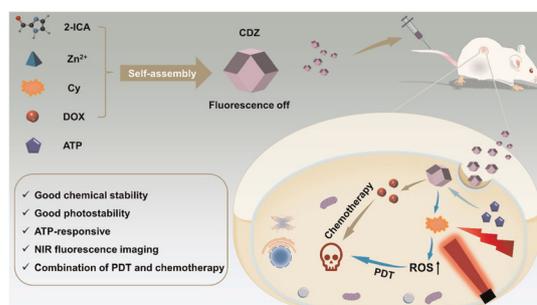
Kosuke Sakamoto, Shinya Masuda, Shinjiro Takano and Tatsuya Tsukuda*



20617

An ATP-responsive ZIF-based NIR fluorescence nanosystem for enhanced chemo-photodynamic therapy of tumors

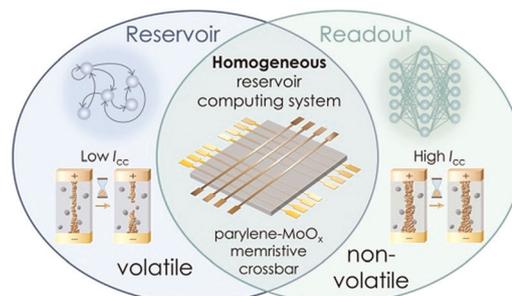
Si-Si Chen, Xiao-Fan Xu, Wei-Qun Deng, Guo-Jiang Mao, Liufang Hu, Juan Ouyang* and Chun-Yan Li*



20628

Parylene-MoO_x crossbar memristors as a volatile reservoir and non-volatile readout: a homogeneous reservoir computing system

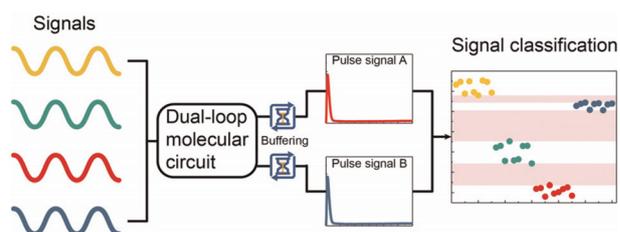
Margarita A. Ryabova, Anna N. Matsukatova, Andrey V. Emelyanov,* Alexander A. Nesmelov, Timofey D. Patsaev and Vyacheslav A. Demin



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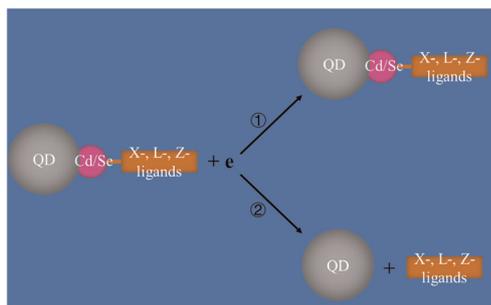
Engineering a dual-loop molecular circuit with buffering capability to solve molecular information tasks

Xin Liu, Shuang Cui, Xun Zhang, Yao Yao, Bang Zhang, Bin Wang and Qiang Zhang*



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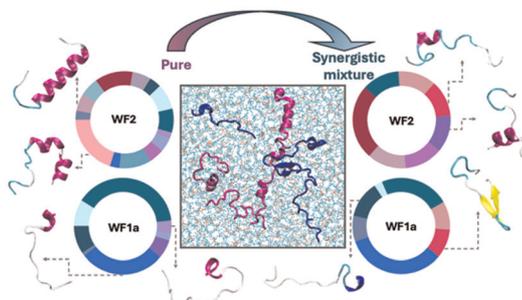
20647



Ligand effect on surface reconstruction in CdSe quantum dots driven by electron injection in electroluminescence processes

Xiangyu Huo, Yujuan Xie, Xian Wang, Li Zhang and Mingli Yang*

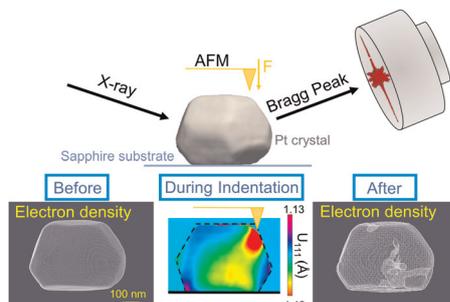
20657



Emergent conformational and aggregation properties of synergistic antimicrobial peptide combinations

Miruna Serian, A. James Mason and Christian D. Lorenz*

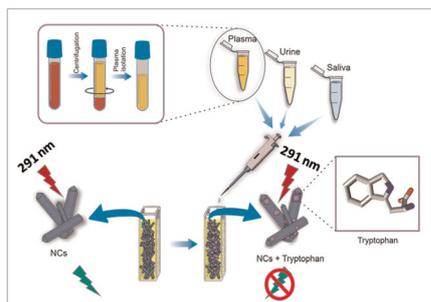
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In situ three-dimensional observation of plasticity onset in a Pt nanoparticle

Sarah Yehya,* Thomas W. Cornelius, Marie-Ingrid Richard, Felisa Berenguer, Mor Levi, Eugen Rabkin, Olivier Thomas and Stéphane Labat

20679



Orotic acid-capped Tb(III)-doped calcium sulphate nanorods for the selective detection of tryptophan

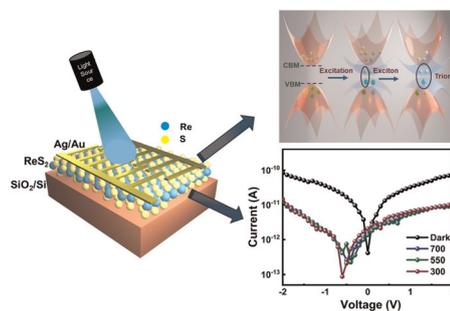
Jaydeep Kumar, Neha Yadav, Viplove Mishra, Heramba V. S. R. M. Koppiseti, Avishek Roy, Antarip Mitra and Venkataramanan Mahalingam*



20689

Understanding the emergence of negative photoconductivity in CVD grown ReS₂ thin films by invoking the trion generation mechanism

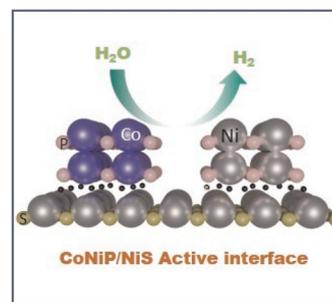
Sakshi Garg, Abhishek Ghosh, Pallavi Aggarwal, Taslim Khan, Sonika Singh, Ashok Kapoor and Rajendra Singh*



20701

Synergistic interfacial electronic modulation of topotactically developed bimetallic CoNiP on NiS nanorods for enhanced alkaline hydrogen evolution reaction

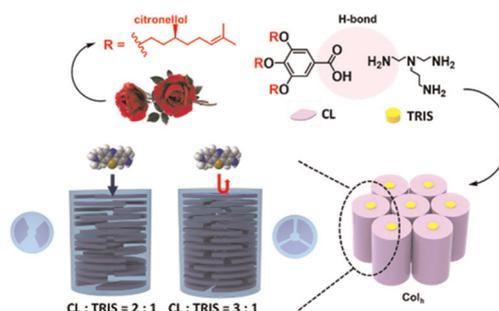
W. B. Dilebo, M.-C. Tsai,* C.-Y. Chang, H. G. Edao, Y. Nikodimos, E. A. Moges, K. Lakshmanan, F. T. Angerasa, C. B. Guta, K. B. Ibrahim, Y. A. Awoke, T. Alamirew, W.-S. Liao, G. B. Desta, J.-L. Chen, W.-N. Su* and B. J. Hwang*



20714

Self-assembled nanostructured membranes with tunable pore size and shape from plant-derived materials

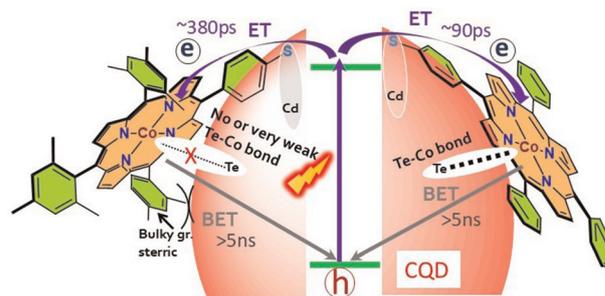
Ruiqi Dong, Na Kyung Kim, Zhuan Yi and Chinedum O. Osuji*



20725

Structure dependent activation of a Co molecular catalyst through photoinduced electron transfer from CdTe quantum dots

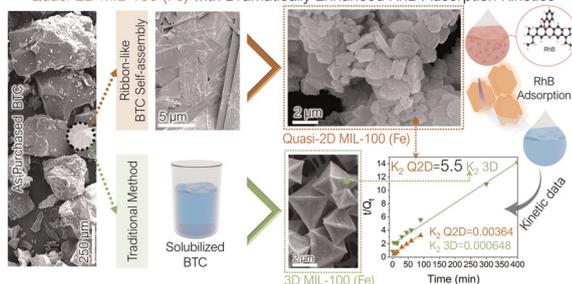
Jayanta Dana,* M. R. Ajayakumar, Alexander Efimov, Timo Weckman, Karoliina Honkala and Nikolai V. Tkachenko



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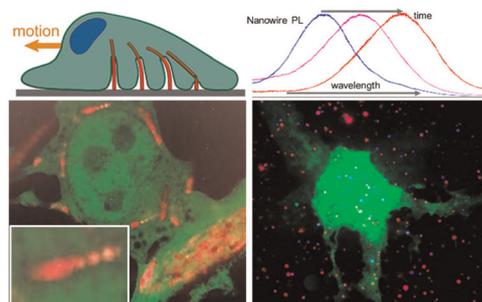
Quasi-2D MIL-100 (Fe) with Dramatically Enhanced RhB Adsorption Kinetics



Quasi-2D MIL-100 (Fe) synthesis via benzene-1,3,5-tricarboxylic acid self-assembly: organic dye adsorption at room temperature with dramatically enhanced kinetics

Ghazal Rabiee, Alireza Abbasi* and Mohammad Behbahani

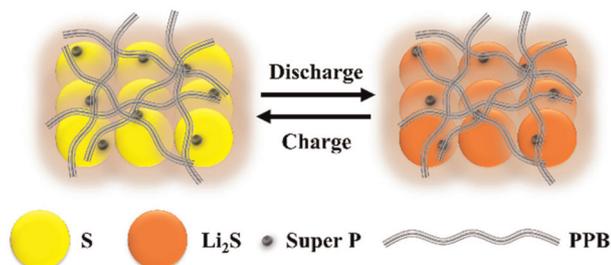
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Cells have the ability to break and chemically modify GaP(As) nanowires

Stanislav V. Shmakov, Zlata P. Sosnovitskaia, Ekaterina A. Makhneva, Maria A. Anikina, Alexey Kuznetsov, Valeriy M. Kondratev, Nikita Solomonov, Vitali M. Boitsov, Vladimir V. Fedorov, Ivan S. Mukhin, Anton S. Bukatin* and Alexey D. Bolshakov*

20765



Multifunctional water-soluble binders for Li-S batteries

Hongbang Zheng, Longli Ma, Pengshu Yi, Zhan Fang, Yuhang Yuan, Jianfeng Shen* and Mingxin Ye*

CORRECTIONS

20774

Correction: Nucleic acid detection with single-base specificity integrating isothermal amplification and light-up aptamer probes

Jaekyun Baek, Jihyun Park and Youngeun Kim*



CORRECTIONS

20775

Correction: Nanorod-associated plasmonic circular dichroism monitors the handedness and composition of α -synuclein fibrils from Parkinson's disease models and post-mortem brain

Francesca Longhena, Rihab Boujelbene, Viviana Brembati, Michele Sandre, Luigi Bubacco, Sergio Abbate, Giovanna Longhi* and Arianna Bellucci*

