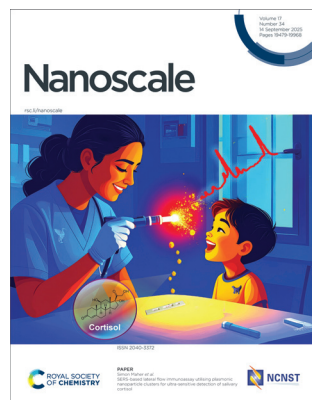


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ISSN 2040-3372 CODEN NANOHL 17(34) 19479–19968 (2025)



Cover

See Simon Maher *et al.*, pp. 19656–19665.

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EDITORIAL

19492

Introduction to theranostic nanoplatfoms for biomedicine

Sylvie Begin, Sophie Laurent, Teresa Pellegrino and Nguyen Thi Kim Thanh*

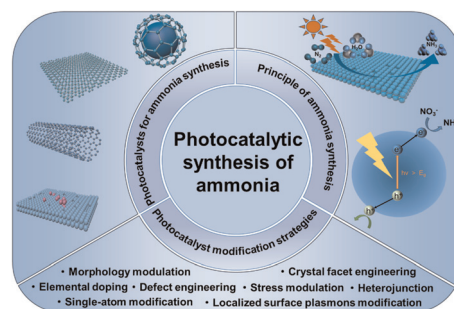


REVIEWS

19496

Recent advances in photocatalytic ammonia synthesis: materials design and mechanistic insights

Haipeng Zuo, Hao Zhou,* Bo Lin,* Wei Jiang and Jun Di*



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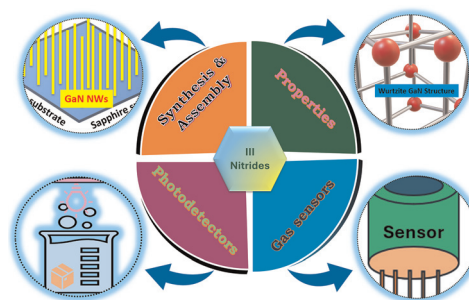


REVIEWS

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Next-generation electrochemical etching for III-nitride semiconductors: Innovations, applications, and beyond

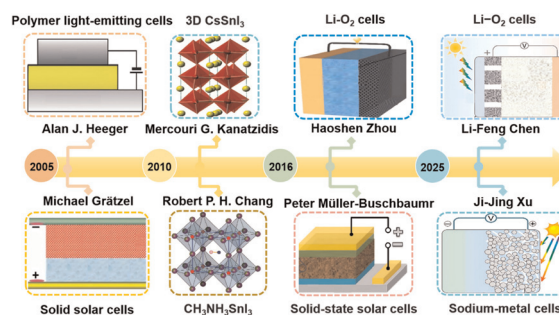
Ramesh Kumar Raji, Naser Qamhieh, Adel Najjar, Falah Awwad, Adnan Younis and Saleh T. Mahmoud*



19571

Dual-function electrodes for photo-rechargeable batteries: mechanisms, designs, and applications

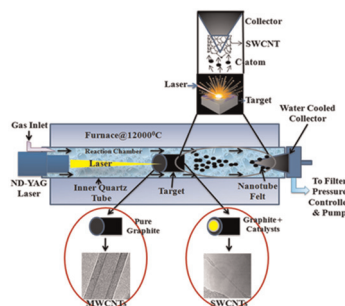
Weizhai Bao,* Yangyang Zhang, Min Yang, Hao Shen, Yaoyu Wang, Kunhao Zhang, Zichen Yang, Guozhao Zeng, Dingyu Cui, Jingjie Xia, Jun Liu, Jiale Li, He Liu, Cong Guo, Bin Quan,* Feng Yu,* Kaiwen Sun* and Jingfa Li*



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Femtosecond laser processing of carbon nanotubes: synthesis, surface modification, and cutting

Long Lv, Pei Zuo,* Fang Li,* Guoyan Wang, Kaihu Zhang, Hong Tian, Weina Han, Sijia Liu, Rongrong Xu, Yizhuo Huo, Hairuo Rao and Yifan Yuan

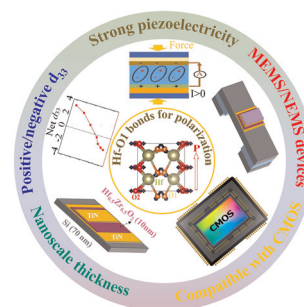


MINIREVIEW

19613

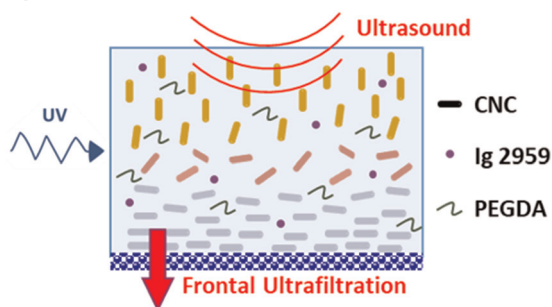
Structure, properties and applications of HfO₂-based piezoelectric films

Yong Huang,* Wenbin Tang, Xiao Xu, Shicheng Ding, Xinhua Xu and Guoliang Yuan*



COMMUNICATIONS

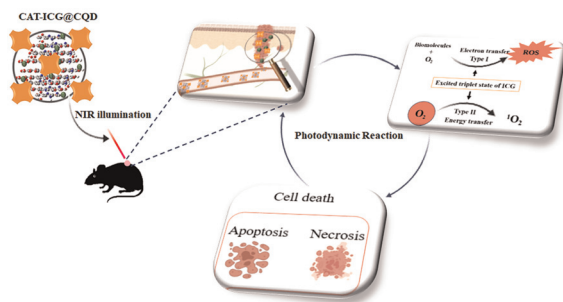
19625



Structural mechanisms of cellulose-based nanocomposites mimicking the structure of articular cartilage under uniaxial compression probed by *in situ* SAXS

Fanny Bosson, Mohamed Karrouch, Didier Blésès, William Chèvremont, Thomas Gibaud, Laurent Michot, Bruno Jean, Vianney Delplace, Nicolas Hengl and Frédéric Pignon*

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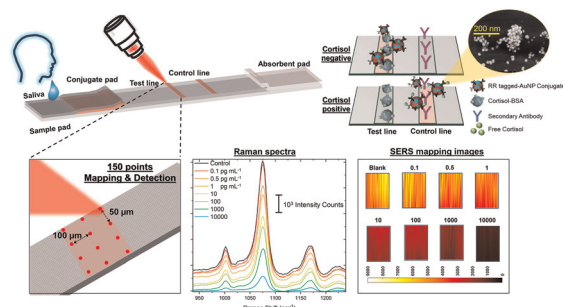


Catalase enzyme-modified carbon quantum dot nanoparticles with hypoxia alleviation associated with indocyanine green for synchronous augmented photodynamic therapy and cell imaging of melanoma

Hadiseh Mehravanfar, Nafiseh Farhadian,* Khalil Abnous and TaranehSadat Zavvar

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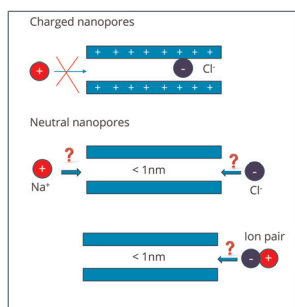
19656



SERS-based lateral flow immunoassay utilising plasmonic nanoparticle clusters for ultra-sensitive detection of salivary cortisol

Hyun-Kyung Oh, Baris Akbali, Tung-Ting Sham, Adam Haworth-Duff, Joanne C. Blair, Barry L. Smith, Nontawat Sricharoen, Cassio Lima, Tsan-Yao Chen, Chen-Han Huang, Kanet Wongravee, Min-Gon Kim, Royston Goodacre and Simon Maher*

19666



Influence of ion pairing on ion and counterion retention in neutral nanopores of gibbsite and kaolinite

Tuan A. Ho

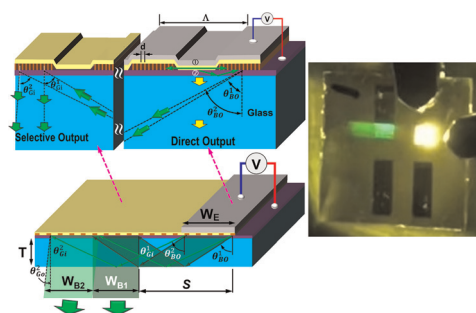


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Dislocated output coupling within a selected band in an OLED based on an in-plane DBR microcavity array

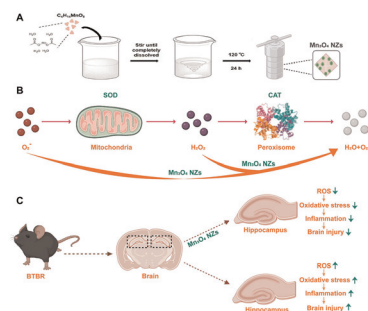
Wenwen Wu, Yue Liu, Yiwei Zhang and Xinping Zhang*



19681

Mn₃O₄ nanozymes as potential therapeutic agents for autism spectrum disorder: insights from behavioral and molecular studies

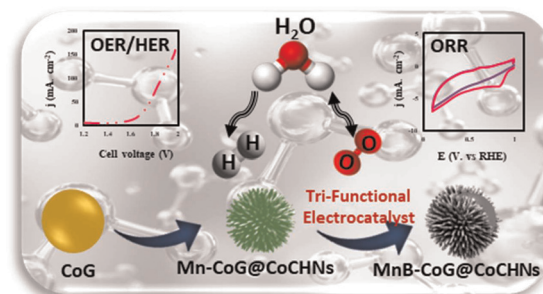
Minghui Li, Song Wang, Lingling Chang, Ruiting Chen, Yuhang Liu, Zhengjie Ye, Yuhang Zhao, YiFan Ma, Jing Yang, Xinyu Gan, Yongzhi Zhuang* and Peng Wang*



19695

ORR, OER, and HER activity promotion in hierarchical yolk-shell structures based on Co-glycerate@cobalt carbonate hydroxide by dual doping with manganese and boron

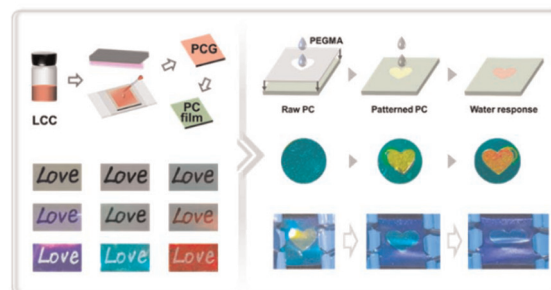
Maryam Shamloofard and Saeed Shahrokhian*



19710

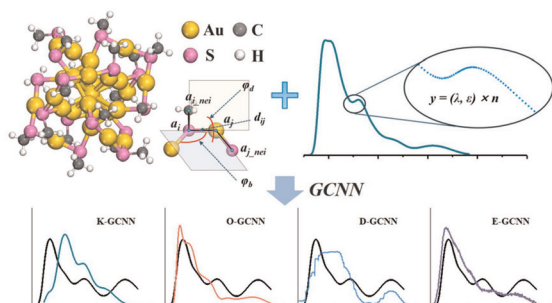
Transparent and flexible photonic crystal films with enhanced optical performance for multi-level anti-counterfeiting applications

Mengjing Zhu, Huateng Li, Qilin Guo, Jia Guo and Changchun Wang*



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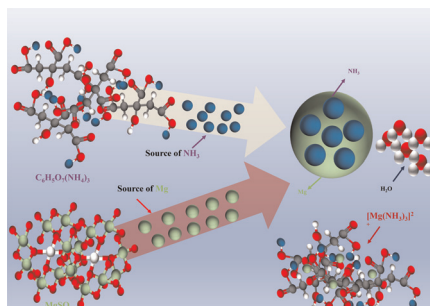
19720



Prediction of UV-vis absorption spectra of thiolate-protected gold nanoclusters based on graph convolutional neural networks

Chenxi Peng, Pu Wang* and Yong Pei*

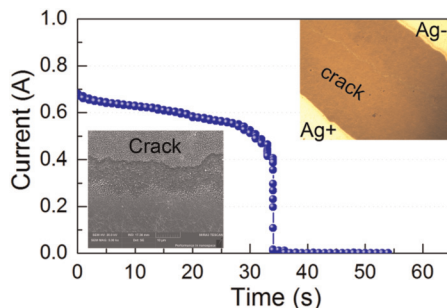
19731



Synthesis of nano magnesium oxide: a study on a magnesium sulfate-ammonium citrate chelation system

Jiaqi Zhu, Tianpeng Wen* and Jingkun Yu

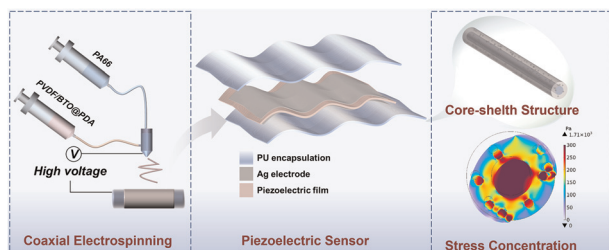
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Electric field-induced breaking behavior of silver nanowire-based transparent and conductive films and their protection

Ruihong Tang, Jinyang Gong, Yidi He, Xiaoyang Cai, Jinpeng Yang, Boyu Yang, Yuchi Zhou, Yuhuan Xiao, Qingrui Cai, Wuji Zong, Deming Kong,* Biao He and Conghua Zhou*

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Venus flytrap-inspired PVDF-based sensitive strain sensor with modulus-tuned design for anisotropic bending recognition

Li Zeng, Yuan Li, Qichao Li and Yiping Guo*

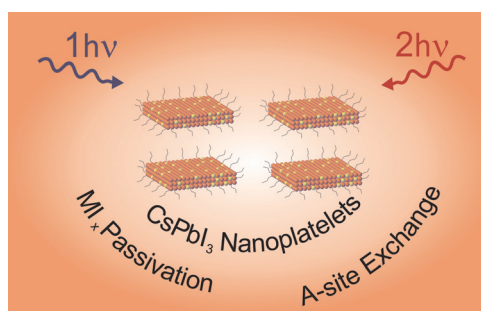


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A-site cation substitution in CsPbI₃ perovskite nanoplatelets enables their tunable emission and efficient nonlinear absorption

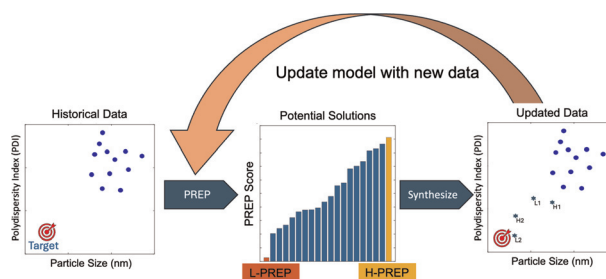
Aleksandr P. Litvin,* Danila A. Tatarinov, Azat O. Ismagilov, Xiaoyu Zhang, Weitao Zheng* and Andrey L. Rogach



19767

Data-driven optimization of nanoparticle size using the prediction reliability enhancing parameter (PREP)

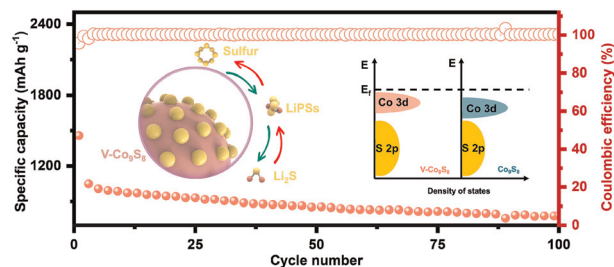
Seyed Saeid Tayebi, Nate Dowdall, Todd Hoare* and Prashant Mhaskar*



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Immobilization and accelerated conversion of polysulfides using vanadium-regulated metal sulfide catalysts for Li-S batteries

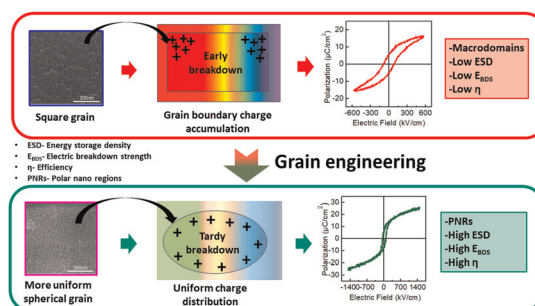
Mingchi Wang, Yuhang Lei, Han Zhang,* Lin Wu, Lixiang Li,* Lin Tao, Hongwei Zhao, Qingdong Li, Xueyuan Zhang, Chengguo Sun, Dongying Ju and Baigang An*



19794

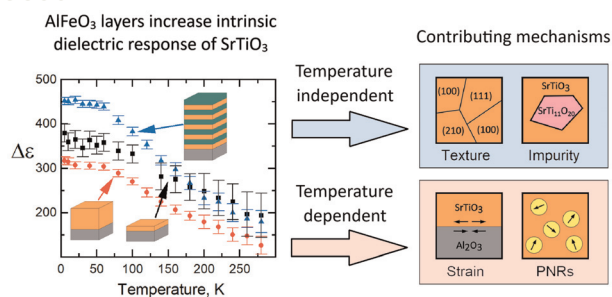
Engineering Pb-free relaxor ferroelectric thin films for low voltage energy storage applications

Duarte J. M. Ribeiro, Surya K. P. Nair, Ampattu R. Jayakrishnan,* João Oliveira, Grégoire Magagnin, David Albertini, Yann Walter, Koppole C. Sekhar, J. Agostinho Moreira, Bernardo G. Almeida, Brice Gautier, Bertrand Vilquin, Luis Marques, Mario Pereira and José P. B. Silva*



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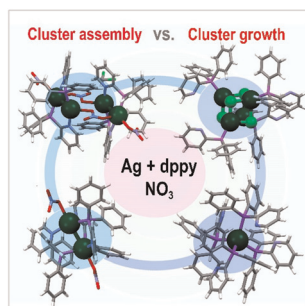
19806



Exploring the intrinsic dielectric behavior of SrTiO₃-based heterostructures: the impact of layer architecture on soft mode dynamics

Alexander V. Melentev, Polina A. Dvortsova, Aleksandr A. Levin, Sergey M. Sutorin, Nikolai S. Sokolov, Maria A. Kirsanova and Mikhail V. Talanov*

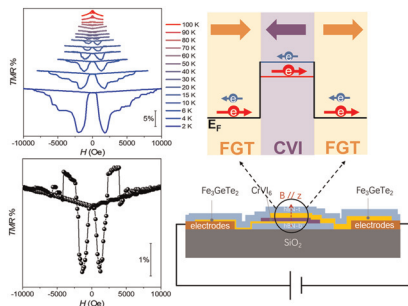
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Studying how small silver clusters grow and their optical properties

Blessing D. Peter, Qiu hao Yi and Zhixun Luo*

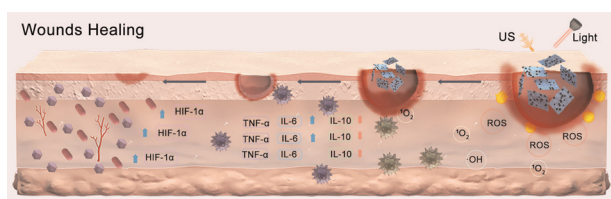
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Temperature-dependent sign reversal of tunneling magnetoresistance in van der Waals ferromagnetic heterojunctions

Qiaoqiao Wang, Jiarui Liu, Chao Yang, Hanzhang Zhao, Yongyi Wu, Feiyan Hou, Tao Li* and Tai Min*

19840



An infection microenvironment-responsive multifunctional nanocomposite for chronic wound treatment through redox homeostasis and macrophage regulation

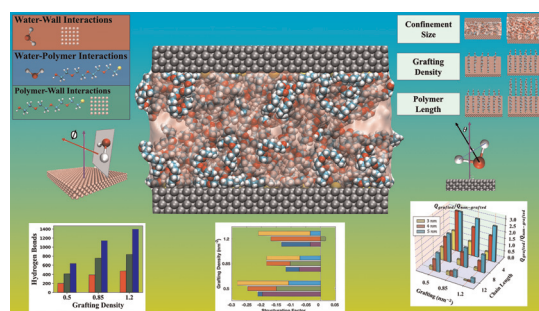
Yu-Juan Zhang, Guo-Dong Cheng, Piao Suo, Xu Chu, Yi Liu* and Shu-Lan Li*



19854

Hydrodynamics inside brush decorated nano-confinements: an all-atom molecular dynamics study

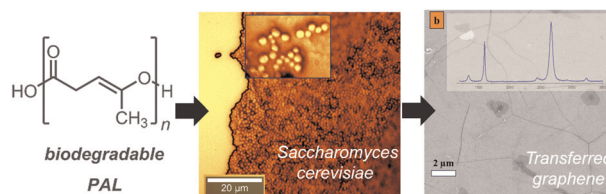
Vinay Arya and Chirodeep Bakli*



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Sustainable nanomanufacturing: two-dimensional materials transfer using a bioderived and biodegradable supportive polymer

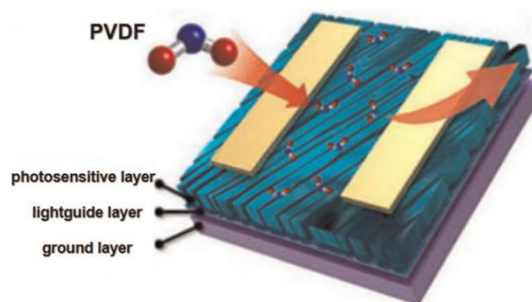
Md Arifur Rahman Khan, Swapna Kalkar, Besan Khader, Olubunmi O. Ayodele, Aleksandrs Prokofjevs* and Tetyana Ignatova*



19882

Direct and solvent-free patterning of flexible electrics through all-solid laser printing

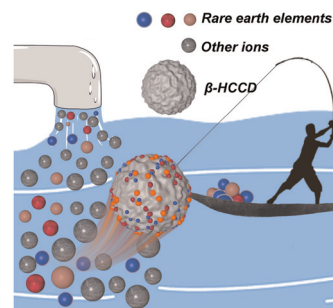
Likun Jiang, Zitian Zhang, Buhao Gao, Xu Han, Linze Jin, Junxiu Piao, Xiaoran Yang, Zongyao Zhang, Chengming Jiang and Sheng Bi*



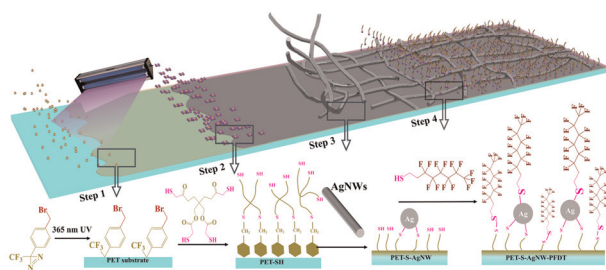
19892

Efficient and rapid recovery of scandium from acidic wastewater using a β -cyclodextrin-based phosphorus-functionalized covalent organic polymer

Ke Liu, Qin Shuai and Lijin Huang*



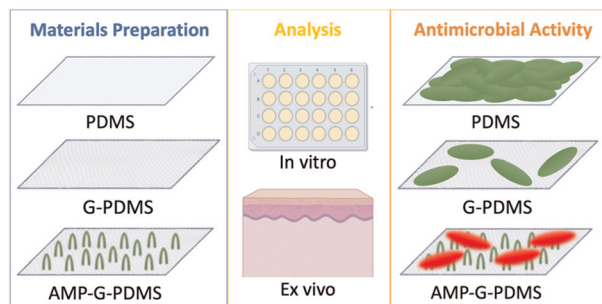
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Fabrication of a foldable transparent conductive electrode with suppressed silver migration by anchoring fluorinated alkyl passivated silver nanowires on a PET surface

Kun Li, Kun Liu, Dingxuan Wang, Dongyu Lv, Jue Cheng, Junying Zhang,* Haobo Zhang* and Feng Gao*

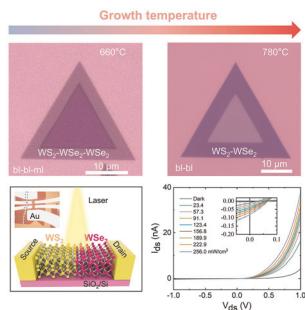
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Antimicrobial peptide-conjugated graphene coatings for prevention and treatment of bacterial infections

Xiao Zhu, Nhan Dai Thien Tram, Dhanya Mahalakshmi Murali, Veluchamy Amutha Barathi, Mayandi Venkatesh, Rajamani Lakshminarayanan and Pui Lai Rachel Ee*

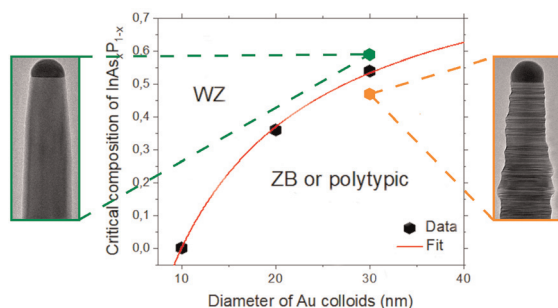
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Tunable bilayer WS_2 - WSe_2 and WS_2 - MoS_2 lateral heterostructures for self-powered photodetectors

Yinghao Chen, Baihui Zhang, Shunhui Zhang, Zhikang Ao, Xiang Lan, Ruofan Yang, Jianing Xie, Wenkui Wen, Yang Du, Wentao Lv, Luyao Wang, Junjie Jin, Zhengwei Zhang* and Fangping Ouyang*

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The role of composition and diameter in the crystal purity of $InAs_xP_{1-x}$ nanowires

Giada Bucci, Vladimir G. Dubrovskii, Valentina Zannier,* Fabio Beltram and Lucia Sorba

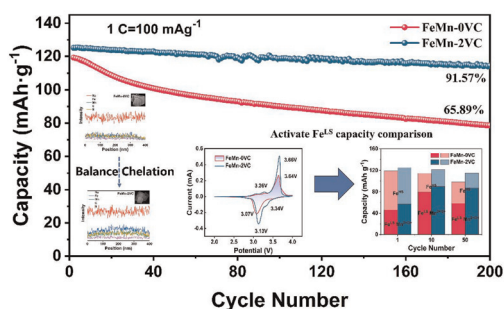


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Tailoring metal–ligand coordination in Prussian blue cathodes for long-cycling and high-rate sodium-ion batteries

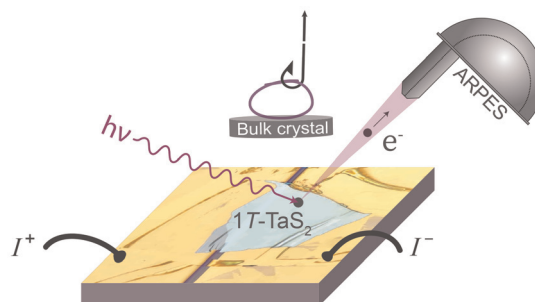
Jie Yang, Lan Wu,* Junhao Duan and Hongjie Tan



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van der Waals devices for surface-sensitive experiments

Nicolai Taufertshöfer, Corinna Burri, Rok Venturini, Iason Giannopoulos, Sandy Adhitia Ekahana, Enrico Della Valle, Anže Mraz, Yevhenii Vaskivskyi, Jan Lipič, Alexei Barinov, Dimitrios Kazazis, Yasin Ekinci, Dragan Mihailovic* and Simon Gerber*



CORRECTION

19966

Correction: Nanophotonics of mid-infrared plasmon-polaritons at interfaces between metals and two-dimensional crystals

Flávio H. Feres,* Ingrid D. Barcelos, Dario A. Bahamon, João E. Levandoski, Andrea Mancini, Thiago M. dos Santos, Rafael A. Mayer, Davi H. S. Camargo, Carlos C. B. Bufon, Adrian Cernescu, Stefan A. Maier, Raul de O. Freitas and Francisco C. B. Maia*

