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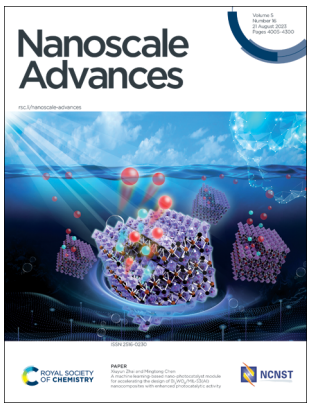

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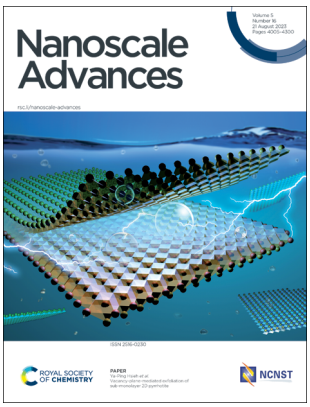


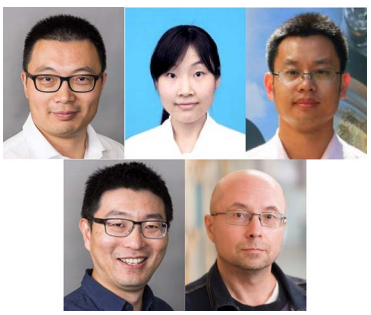
Inside cover
See Ya-Ping Hsieh *et al.*, pp. 4074–4079. Image reproduced by permission of Ya-Ping Hsieh from *Nanoscale Adv.*, 2023, **5**, 4074.

EDITORIAL

4015

Introduction to Supercapacitors

Zhaojun Han, Ruopian Fang, Dewei Chu, Da-Wei Wang and Kostya (Ken) Ostrikov



REVIEWS

4018

Recent advances of nanocrystals in cancer theranostics

Devyani Yenurkar, Malay Nayak and Sudip Mukherjee*

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REVIEWS

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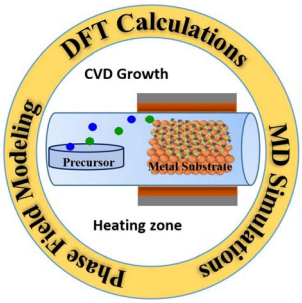
Growth mechanisms of monolayer hexagonal boron nitride (*h*-BN) on metal surfaces: theoretical perspectives

Md. Sherajul Islam,* Abdullah Al Mamun Mazumder, Minhaz Uddin Sohag, Md. Mosarof Hossain Sarkar, Catherine Stampfl and Jeongwon Park



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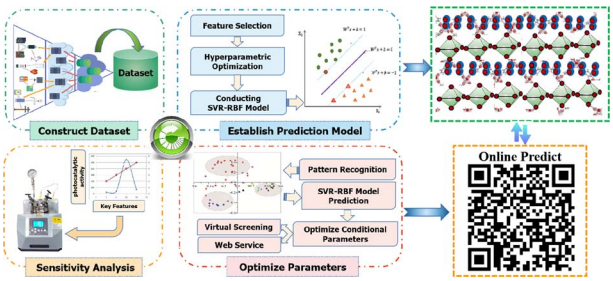
A machine learning-based nano-photocatalyst module for accelerating the design of Bi_2WO_6/MIL-53(Al) nanocomposites with enhanced photocatalytic activity

Xiuyun Zhai* and Mingtong Chen



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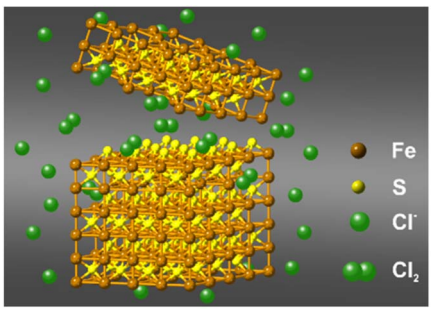
Vacancy-plane-mediated exfoliation of sub-monolayer 2D pyrrhotite

Jian-Jhang Lee, Yi-Hung Chu, Zhi-Long Yen, Jeyavelan Muthu, Chu-Chi Ting, Ssu-Yen Huang, Mario Hofmann and Ya-Ping Hsieh*



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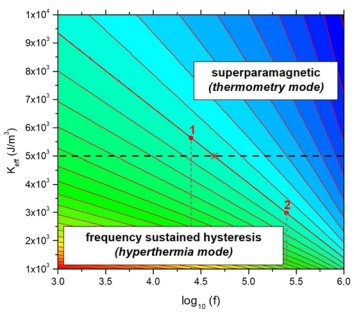
Multifunctional effects in magnetic nanoparticles for precision medicine: combining magnetic particle thermometry and hyperthermia

Gabriele Barrera,* Paolo Allia and Paola Tiberto



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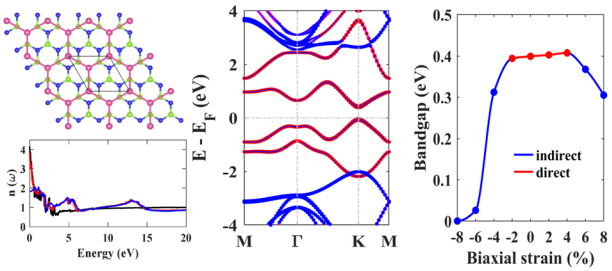

Numerical characterization of the electronic and optical properties of plumbene/hBN heterobilayer using first-principles study

Nishat Tasnim Hiramony, Tanshia Tahreen Tanisha, Sumaiya Jahan Tabassum and Samia Subrina*

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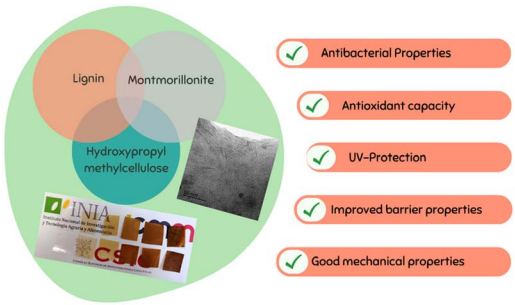

Effect of the combined addition of ultrasonicated kraft lignin and montmorillonite on hydroxypropyl methylcellulose bionanocomposites

Raquel Martín-Sampedro,* Pilar Aranda, Gustavo del Real, Eduardo Ruiz-Hitzky and Margarita Darder

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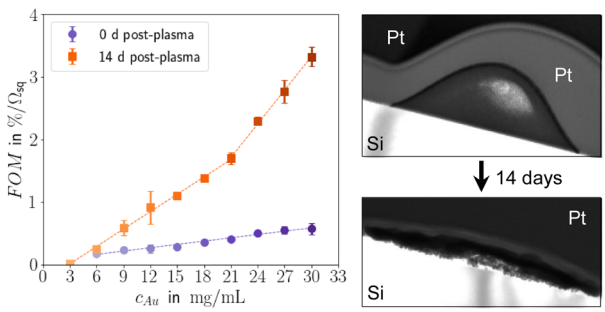

Consolidation and performance gains in plasma-sintered printed nanoelectrodes

Lukas F. Engel, Lola González-García* and Tobias Kraus*

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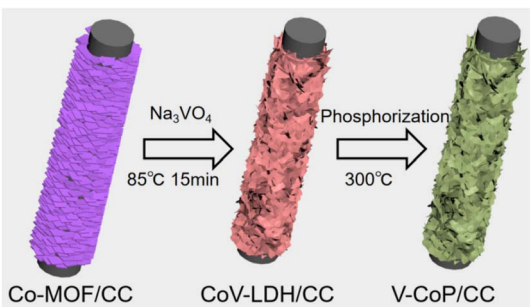

V-doped porous CoP nanoarrays grown on carbon cloth with optimized electronic structure for the hydrogen evolution reaction

Wenzhi Jia, Qian Lu, Wenjun Zheng, Kunyan Wang, Xinhua Liu, Shichun Yang and Bin He*

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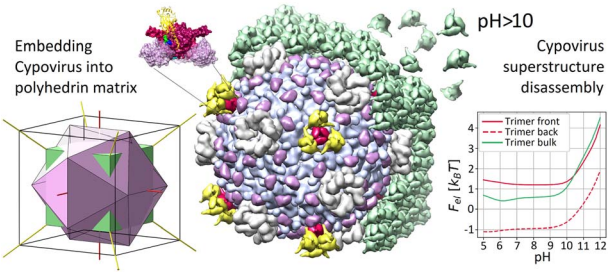
Integration of Cypoviruses into polyhedrin matrix

Olga V. Konevtsova, Ivan Yu. Golushko, Rudolf Podgornik* and Sergei B. Rochal*



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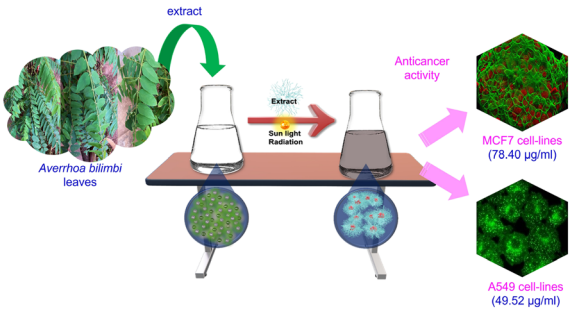
Phytofabrication of silver nanoparticles using *Averrhoa bilimbi* leaf extract for anticancer activity

Leena V. Hublikar, Sharanabasava V. Ganachari* and Veerabhadragouda B. Patil*



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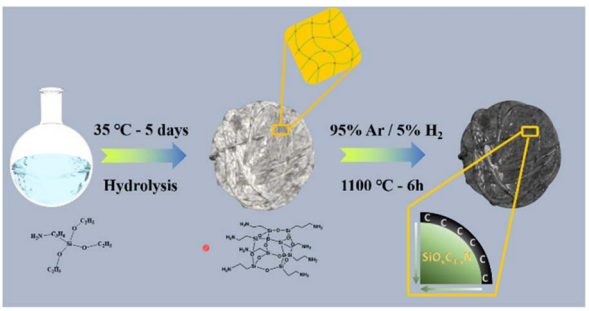
***In situ* preparation of double gradient anode materials based on polysiloxane for lithium-ion batteries**

Siqi Guan, Chen Xu, Yuanjiang Chen, Yongjin Zhang, Lixiang Li, Han Zhang, Baigang An,* Haiming Yang, Weimin Zhou, Chengguo Sun, Dongying Ju and Xin Geng*



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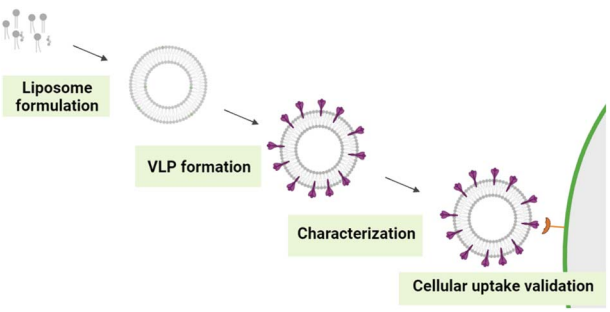
SARS-CoV-2 virus-like-particles *via* liposomal reconstitution of spike glycoproteins

Sarah McColman,* Klaidi Shkalla, Pavleen Sidhu, Jady Liang, Selena Osman, Norbert Kovacs, Zainab Bokhari, Ana Carolina Forjaz Marques, Yuchong Li, Qiwen Lin, Haibo Zhang and David T. Cramb*



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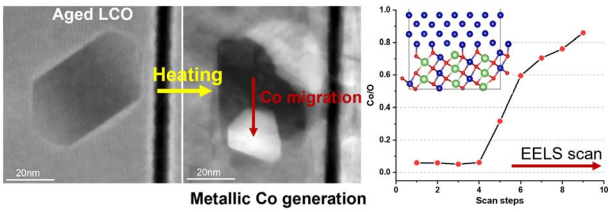

Chip-based *in situ* TEM investigation of structural thermal instability in aged layered cathode

Yuhan Wang, Yuan Yuan,* Xiaobin Liao, Gustaaf Van Tendeloo, Yan Zhao* and Congli Sun*

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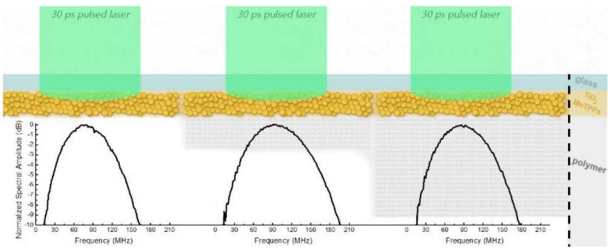

Ultrathin materials for wide bandwidth laser ultrasound generation: titanium dioxide nanoparticle films with adsorbed dye

Tiago B. Pinto, Sara M. A. Pinto, Ana P. Piedade and Carlos Serpa*

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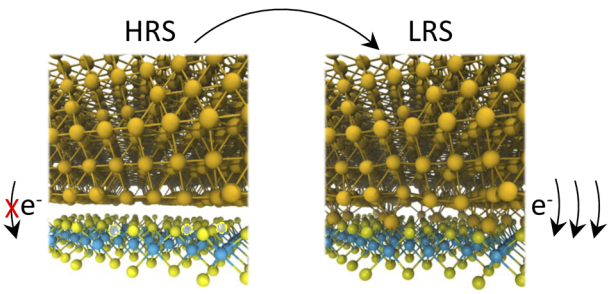

Non-volatile resistive switching mechanism in single-layer MoS_2 memristors: insights from *ab initio* modelling of Au and MoS_2 interfaces

Gabriele Boschetto,* Stefania Carapezzi and Aida Todri-Sanial*

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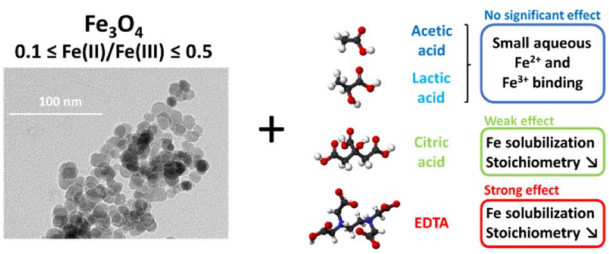

Influence of organic ligands on the stoichiometry of magnetite nanoparticles

Phoomipat Jungcharoen, Rémi Marsac, Fadi Choueikani, Delphine Masson and Mathieu Pédrot*

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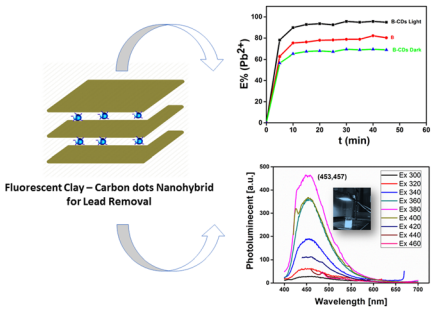
A carbon dot-based clay nanocomposite for efficient heavy metal removal

Khouloud Jlassi,* Maryam Al Ejji, Abdelgalil Khalaf Ahmed, Hafsa Mutahir, Mostafa H. Sliem, Aboubakr M. Abdullah,* Mohamed M. Chehimi* and Igor Krupa



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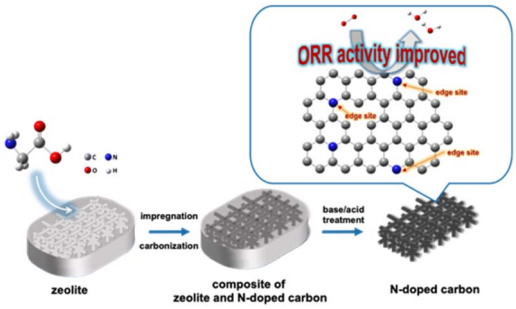
A zeolite templating method for fabricating edge site-enriched N-doped carbon materials

Yurika Taniguchi, Yasuhiro Shu, Ryuji Takada, Koji Miyake,* Yoshiaki Uchida and Norikazu Nishiyama



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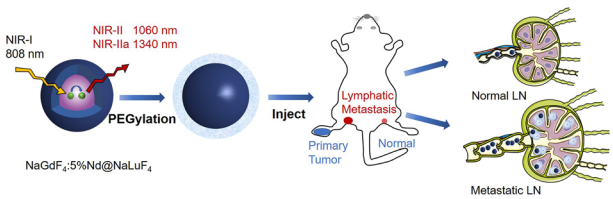
Intraoperative diagnosis of early lymphatic metastasis using neodymium-based rare-earth NIR-II fluorescence nanoprobe

Guangxin Duan, Jingyu Zhang, Zhuxin Wei, Ximing Wang, Jianfeng Zeng, Shuwang Wu, Chunhong Hu* and Ling Wen*



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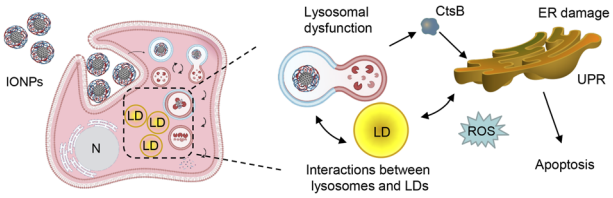
Iron oxide nanoparticles trigger endoplasmic reticulum damage in steatotic hepatic cells

Mariia Uzhytchak, Mariia Lunova, Barbora Smolková, Milan Jirsa, Alexandr Dejneka* and Oleg Lunov*



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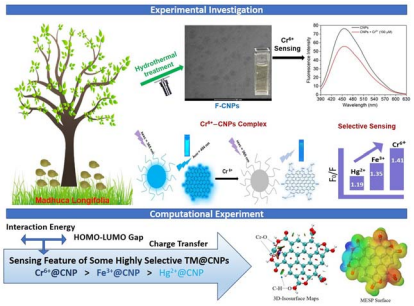

Development of fluorescent carbon nanoparticles from *Madhuca longifolia* flower for the sensitive and selective detection of Cr^{6+}: a collective experimental–computational approach

Tuhin Mandal, Ashish Kumar Ghosh, Shiv Rag Mishra, Sarvesh Kumar Pandey* and Vikram Singh*

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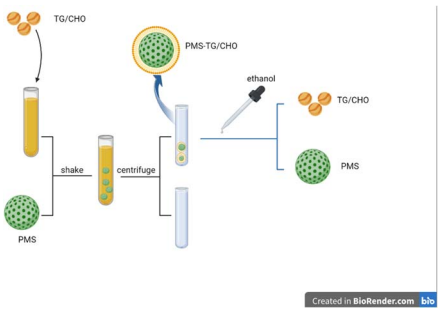

New application of a periodic mesoporous nanocrystal silicon–silica composite for hyperlipidemia

Wenbin Lu,* Hao Jin,* Jiandong Ding, Yahao Zhang and Yong Wu

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