Nanoscale

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IN THIS ISSUE

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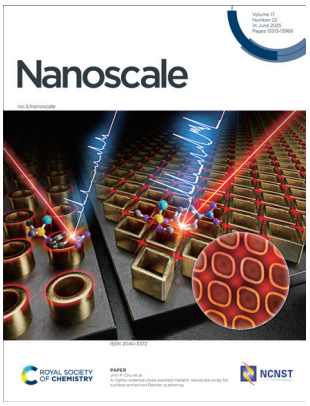

Cover
See Jinn P. Chu *et al.*, pp. 13685–13697.

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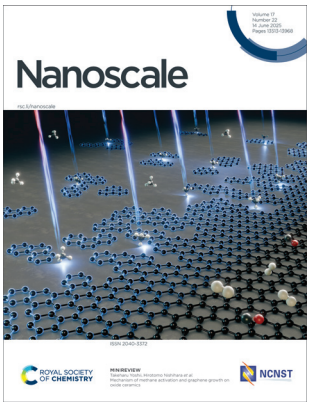

Inside cover
See Takeharu Yoshii, Hirotomo Nishihara *et al.*, pp. 13646–13652.

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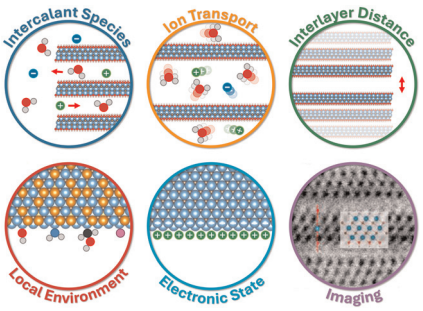
EDITORIAL

REVIEWS



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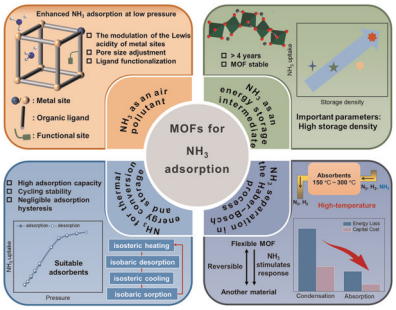
REVIEWS

13561

Metal–organic frameworks for NH_3 adsorption and separation

Rui Luo, Dawei Xu, Ruirui Liu, Junwen Zhou* and Xiaojie Ma*



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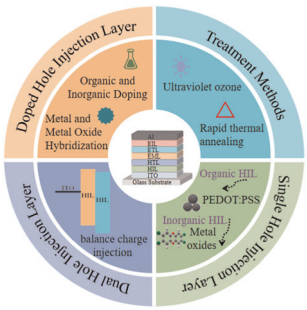
Optimization of the hole-injection layer for quantum dot light-emitting diodes

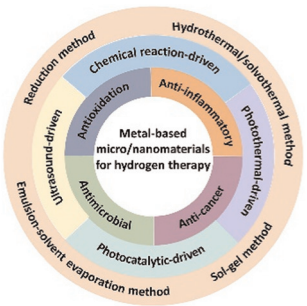
Zirui Wang, Meng Liang, Yongqiang Wang, Haoran Wang, Lei Wang, Ling Zhao, Shuhong Li* and Yunlong Liu*



13594

Metal-based micro/nanomaterials for hydrogen therapy and their biomedical applications

Yu Wang, Haoyu Wang, Handan Zhang, Tao Liu and Xin Chen*



13622

Challenges and future prospects of the 2D material-based composites for microwave absorption

Jia Ren, Ping Shi, Xinyan Zu, Lei Ding, Feng Liu,* Yuzheng Wang, Yuhan Wu, Guimei Shi, Yusheng Wu and Laishi Li*

MINIREVIEWS

COMMUNICATION

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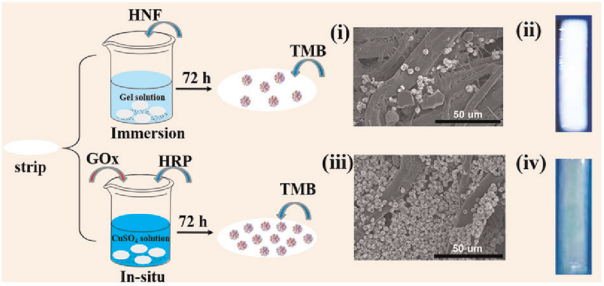

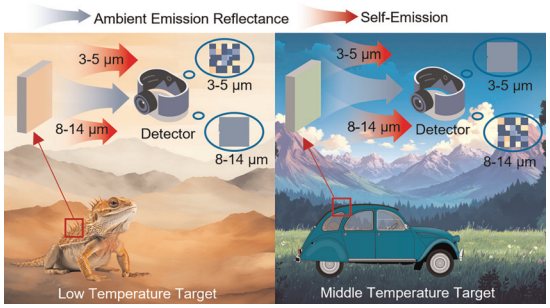

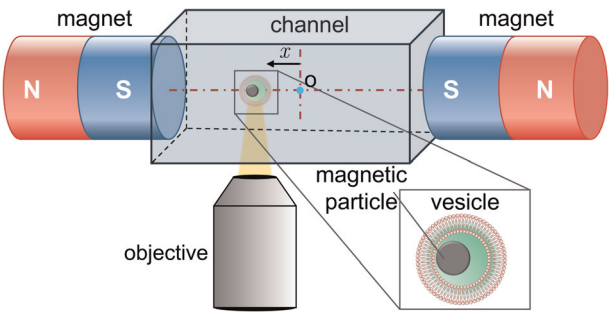

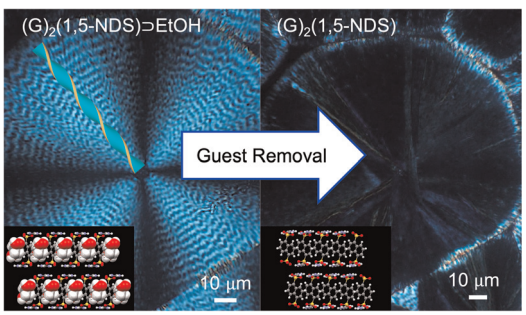

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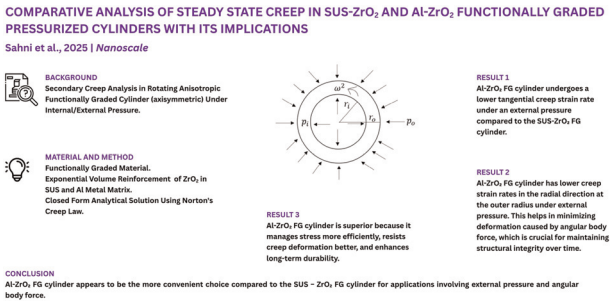

Comparative analysis of steady-state creep in SUS-ZrO_2 and Al-ZrO_2 functionally graded pressurized cylinders and its implications

Manoj Sahni,* Parth Dinesh Mehta and Sandeep Kumar Paul

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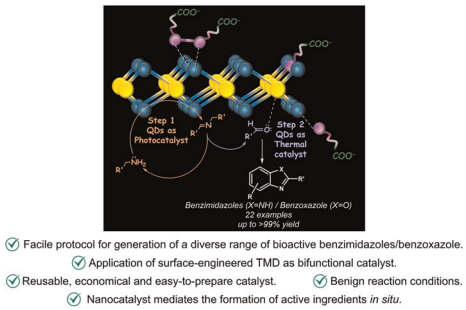
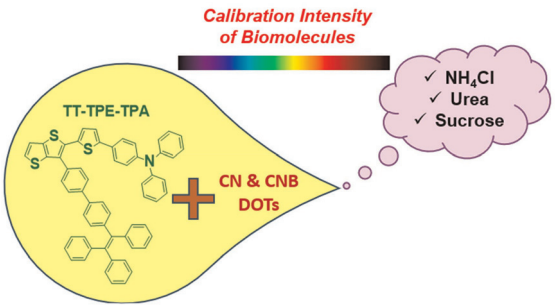


✓ Facile protocol for generation of a diverse range of bioactive benzimidazoles/benzoxazole.
✓ Application of surface-engineered TMD as bifunctional catalyst.
✓ Reusable, economical and easy-to-prepare catalyst. ✓ Benign reaction conditions.
✓ Nanocatalyst mediates the formation of active ingredients *in situ*.

Thiolated molybdenum diselenide quantum dots as a bifunctional catalyst towards the synthesis of benzimidazoles

Komal Jaiswal, Rushikesh Jagtap and Mrinmoy De*

13756



Thienothiophene-based quantum dots: calibration of photophysical properties *via* carbon dot and biomolecular interactions

Recep Isci,* Ozge Ibis, Garen Suna, Caner Unlu* and Turan Ozturk*

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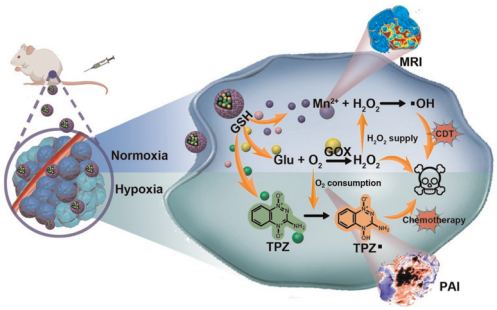

Smart self-assembly of a multifunctional theranostic nanozyme for self-enhanced precise chemo/chemodynamic therapy

Jin Tao, Junhui Wei, Junnan Kan, Kai Qi, Tingting Wang, Ailing Wang, Wenxin Pei, Haiyan Gao, Caixia Yang* and Xianglin Li*

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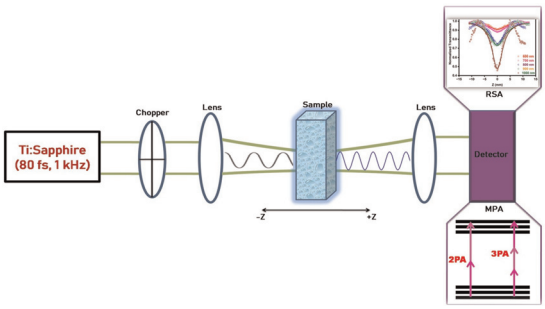
Broadband laser protection and enhanced nonlinear optical response of samarium-metal–organic framework-based white/black carbon hybrids

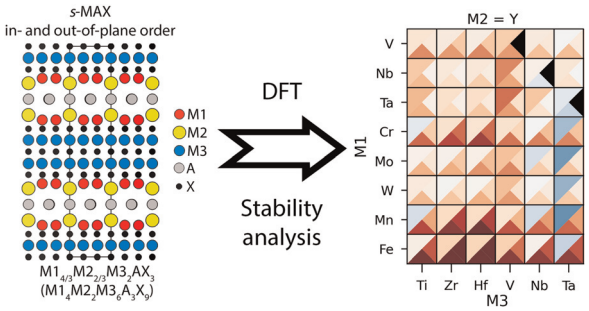
M. Saravanan,* Vinod K. Rajput, K. Suresh, Sri Ram G. Naraharisetty, Sajan D. George, I. Vetha Potheher,* Marek Brzeziński and B. N. Vedha Hari



13787

Combined in- and out-of-plane chemical ordering in super-ordered MAX phases (*s*-MAX)

Martin Dahlqvist* and Johanna Rosen*



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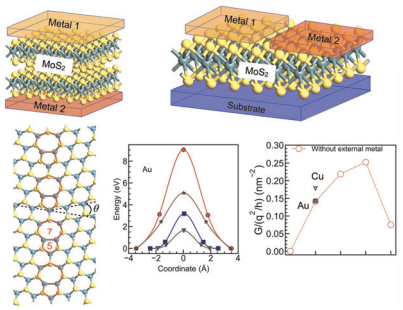
Effect of grain boundaries on metal atom migration and electronic transport in 2D TMD-based resistive switches

Mohit D. Ganeriwala,* Daniel Luque-Jarava, Francisco Pasadas, Juan J. Palacios, Francisco G. Ruiz, Andres Godoy* and Enrique G. Marin



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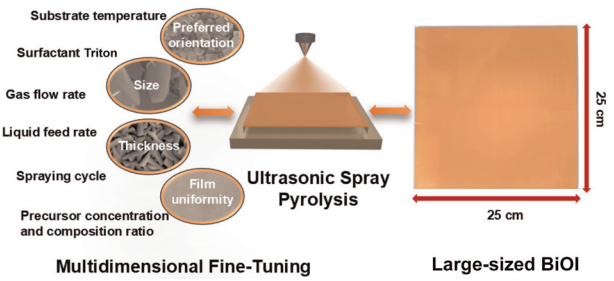
Enabling multidimensional fine-tuning of large-sized BiOI films using ultrasonic spray pyrolysis

Hao Wang, Weilong Qin, Qitao Liu, Neway Belachew, Jianming Li, Qinglu Liu, Jiabo Le and Yongbo Kuang*



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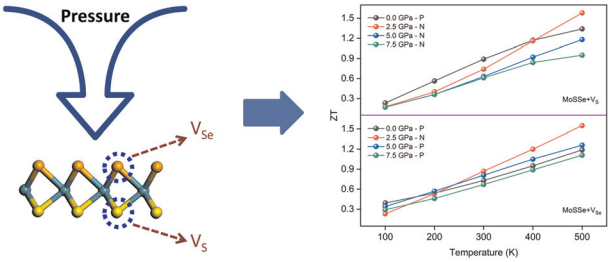
Effect of pressure on the thermoelectric performance of monolayer Janus MoSSe materials with different native vacancy defects

Yuan Shang, Xiaopeng Pan, Yanxing Jia, Yuqiang Wu and Mengtao Sun*



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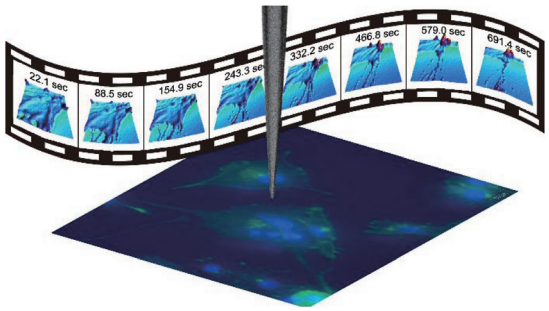
Nanoscale structural dynamics of cell edges in breast tumour cells revealed by scanning ion conductance microscopy

Masahiro Yamazaki, Linhao Sun, Tatsunori Nishimura, Tsunaki Hongu, Shigeyuki Takamatsu, Toshifumi Gabata, Noriko Gotoh* and Shinji Watanabe*



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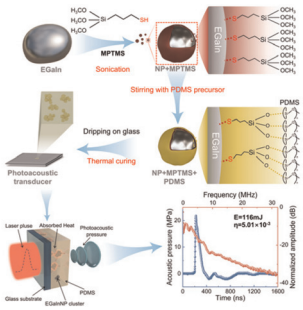
High-efficiency photoacoustic transducers based on plasmonic EGaIn liquid metal nanoparticles

Cheng Luo, Rui Zhou, Yihao Li, Min Li, Xiaoyan Wen, Ming-Yu Li, Shuo Deng, Sisi Liu, Hongyun Gao* and Haifei Lu*



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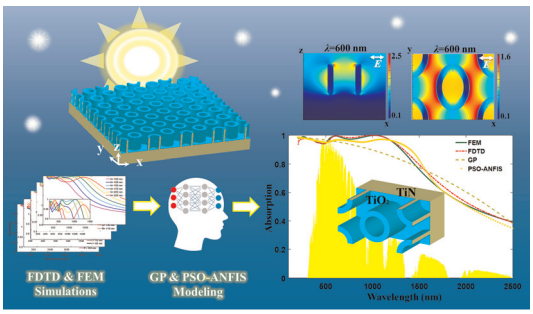
Machine-learning-empowered FDTD/FEM simulations for predictive solar energy absorption in plasmonic metamaterial nanocavity arrays

Zahra Ashrafi-Peyman, Amir Dashti, Amir Jafargholi, John L. Zhou* and Alireza Z. Moshfegh*



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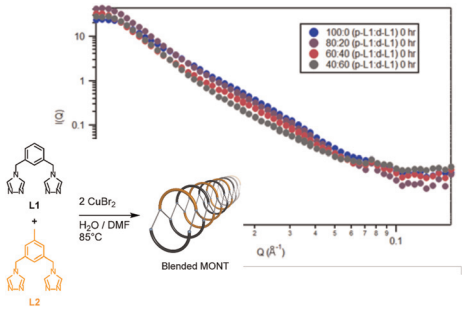

Insights into the copolymerization of metal–organic nanotubes from ligand mixtures using small angle neutron scattering

Md Ashraful Haque, Jacob A. Barrett, Xian B. Carroll, David M. Jenkins* and Mark D. Dadmun*

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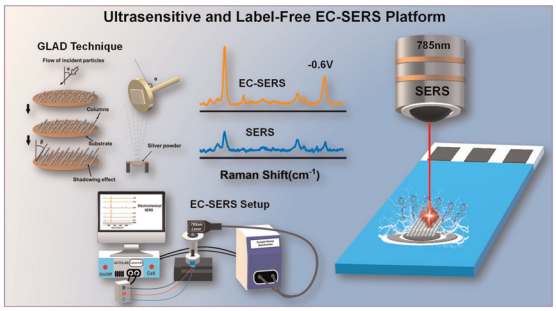

Potential-modulated SERS profiling *via* GLAD-fabricated Ag nanorod arrays for ultrasensitive and label-free spectroelectrochemical sensing

Lakshay Bhardwaj, Jyoti Yadav and J. P. Singh*

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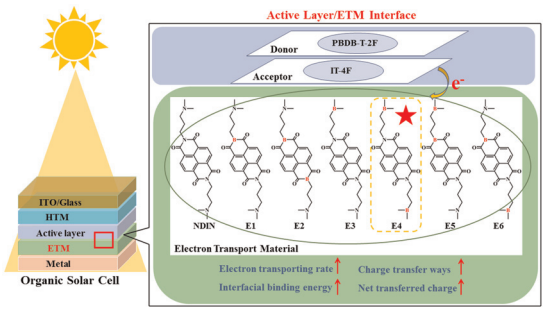

Boron-containing electron transport materials based on naphthalene diimide for organic solar cells: a theoretical study

Shu-Pu Yao, Jie Yang,* Qian Guo, Xiao-Juan Yang and Quan-Song Li*

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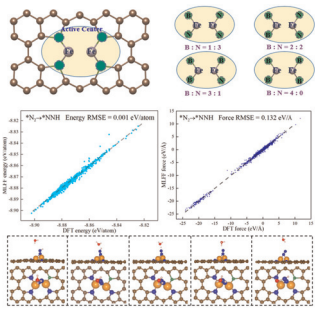

Exploring dual-iron atomic catalysts for efficient nitrogen reduction: a comprehensive study on structural and electronic optimization

Zhe Zhang,* Wenxin Ma, Jiajie Qiao, Xiaoliang Wu, Shaowen Yu, Weiye Hou, Xiang Huang, Rubin Huo, Hongbo Wu* and Yusong Tu*

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Cuticular proteins (crusticuls) affect 3D chitin bundle nanostructure

Shai A. Shaked, Simy Weil, Rivka Manor, Eliahu D. Aflalo, Sharon Moscovitz, Nitzan Maman, Raquel Maria, Benjamin Kruppke, Thomas Hanke, Jerry Eichler, Barak Ratzker, Maxim Sokol and Amir Sagi*