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Cover
See Richard B. Kaner *et al.*, pp. 1279–1289.
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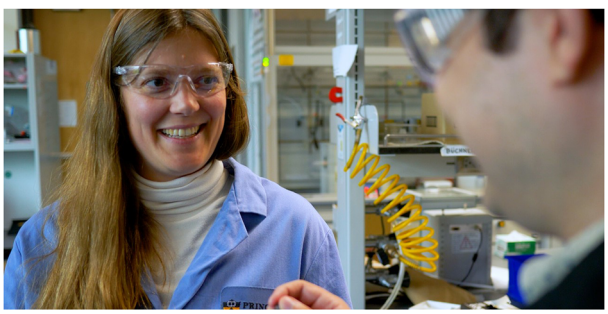
EDITORIAL

1228

***Nanoscale Horizons* Emerging Investigator Series: Dr Leslie Schoop, Princeton University, USA**

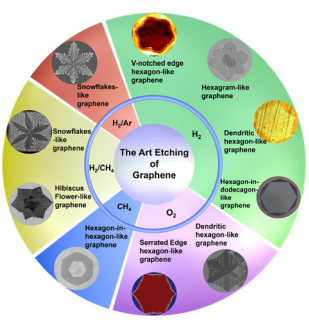


REVIEW

1230

Art etching of graphene

Gayathri Devi N, The-Hung Mai, Ram K. Gupta and Phuong V. Pham*



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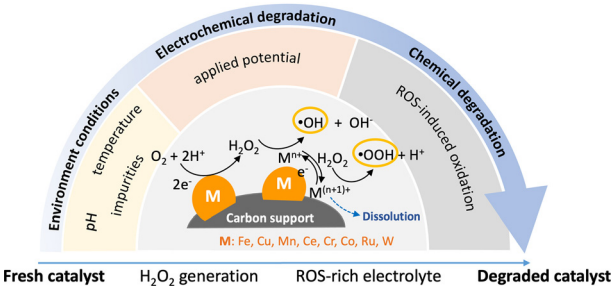
MINIREVIEWS

1250

Catalyst durability in electrocatalytic H_2O_2 production: key factors and challenges

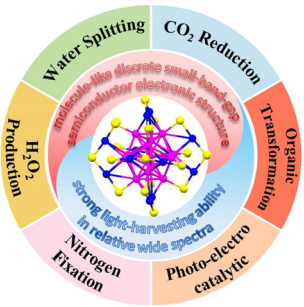
Ji Sik Choi, Guilherme V. Fortunato,* Daniele C. Jung, Julio C. Lourenço, Marcos R. V. Lanza and Marc Ledendecker*



1262

Recent progress in atomically precise metal nanoclusters for photocatalytic application

Yuanxin Du,* Chengqi Li, Yali Dai, Haijiao Yin and Manzhou Zhu*

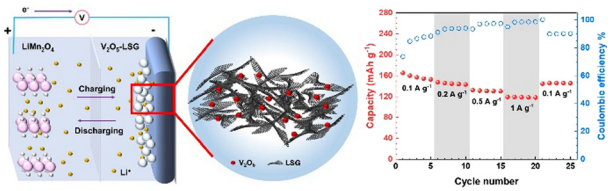


COMMUNICATIONS

1279

A nanoengineered vanadium oxide composite as a high-performance anode for aqueous Li-ion hybrid batteries

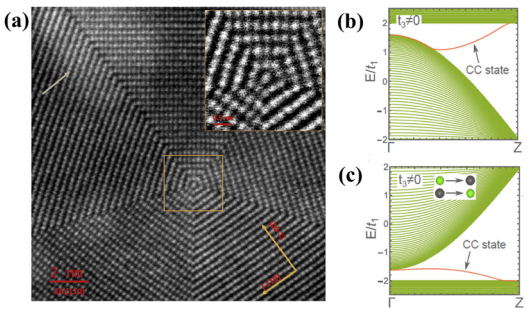
Ailun Huang, Zhiyin Yang, Xueying Chang, Cheng-Wei Lin and Richard B. Kaner*



1290

Pentagonal nanowires from topological crystalline insulators: a platform for intrinsic core–shell nanowires and higher-order topology

Ghulam Hussain, Giuseppe Cuono, Piotr Dziawa, Dorota Janaszko, Janusz Sadowski, Slawomir Kret, Bogusława Kurowska, Jakub Polaczyński, Kinga Warda, Shahid Sattar, Carlo M. Canali, Alexander Lau, Wojciech Brzezicki, Tomasz Story and Carmine Autieri*



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COMMUNICATIONS

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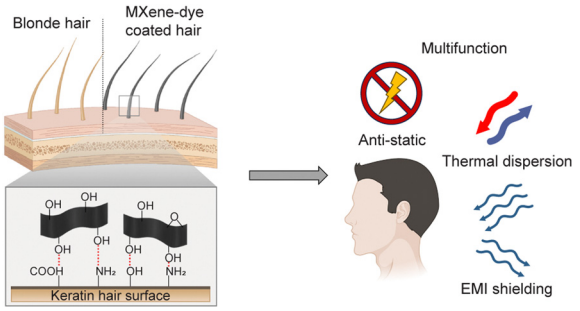

Fabrication of innovative multifunctional dye using MXene nanosheets

Hyeongtaek Park, Young Ho Park, Gul Karima, Sujin Kim, G. Murali, Nathaniel S. Hwang, Insik In and Hwan D. Kim*

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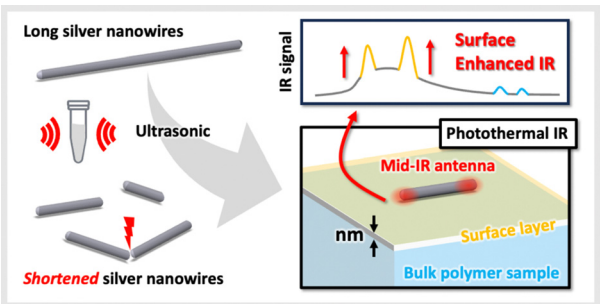

Surface-enhanced optical-mid-infrared photothermal microscopy using shortened colloidal silver nanowires: a noble approach for mid-infrared surface sensing

Naoki Baden, Hirohmi Watanabe, Masaru Aoyagi, Hiroshi Ujii and Yasuhiko Fujita*

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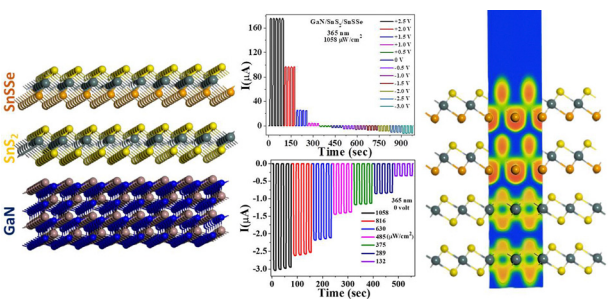
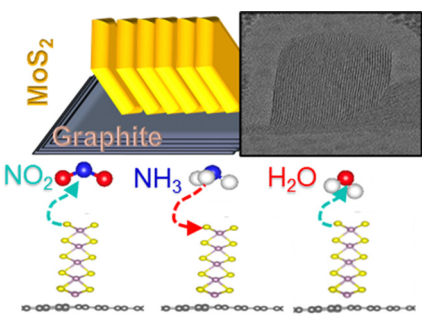


A synergistic heterojunction of SnS_2/SnSSe nanosheets on GaN for advanced self-powered photodetectors

Sukhendu Maity and Praveen Kumar*

1330



Vertical heterostructure of graphite–MoS_2 for gas sensing

M. Tripathi,* G. Deokar, J. Casanova-Chafer, J. Jin, A. Sierra-Castillo, S. P. Ogilvie, F. Lee, S. A. Iyengar, A. Biswas, E. Haye, A. Genovese, E. Llobet, J.-F. Colomer, I. Jurewicz, V. Gadhamshetty,* P. M. Ajayan, Udo Schwingenschlögl, Pedro M. F. J. Costa and A. B. Dalton*

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COMMUNICATIONS

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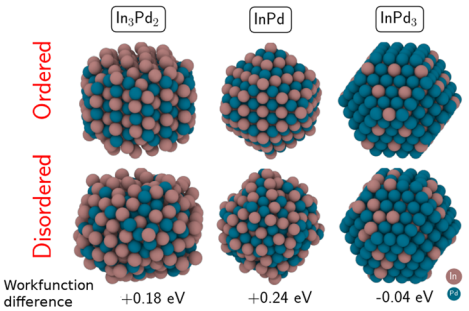
Intermetallics with sp–d orbital hybridisation: morphologies, stabilities and work functions of In–Pd particles at the nanoscale

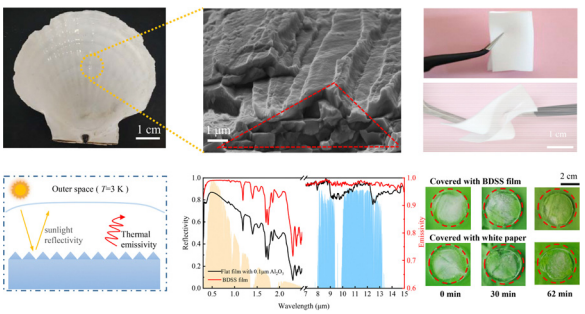
Alexis Front,* Clovis Lapointe and Émilie Gaudry*



1354

Bionic dual-scale structured films for efficient passive radiative cooling accompanied by robust durability

Renwei Zhang, Ningning Sun, Zehong Zhao, Shixu Wang, Mengfan Zhang, Lei Zhao, Yahua Liu and Shile Feng*



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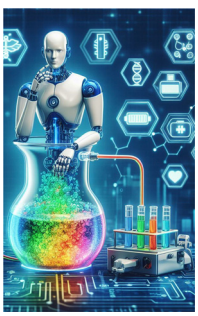
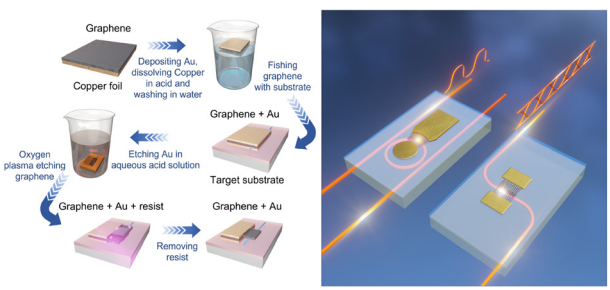
Nanomaterials as a Service (NaaS) concept: on-demand protocols for volume synthesis of nanomaterials

Stylianos Kioumourtzoglou,* Sebastian Hof, Cécile Kalk, Viktor Toth, Mikaela Görlin, Jaroslava Nováková and Jacinto Sá*



1372

High efficiency graphene–silicon hybrid-integrated thermal and electro-optical modulators

Xiaoxuan Wu, Zhengyi Cao, Tianxiang Zhao, Yun Wu,* Zhonghui Li, Spyros Doukas, Elefterios Lidorikis, Yu Xue, Liu Liu, Omid Ghaebi, Giancarlo Soavi, Junpeng Lu, Zhenhua Ni* and Junjia Wang*