

## IN THIS ISSUE

ISSN 2040-3372 CODEN NANOHL 16(22) 10487–10866 (2024)



**Cover**  
See Yuji Kikukawa *et al.*,  
pp. 10584–10589.

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10584.



**Inside cover**  
See Takamasa Tsukamoto,  
pp. 10533–10550.

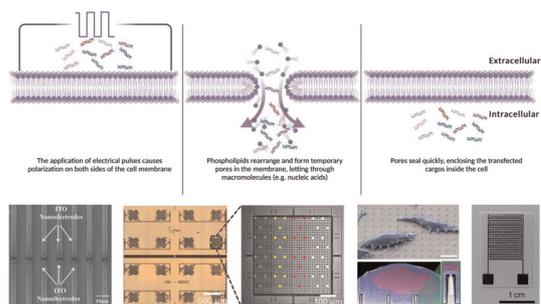
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Takamasa Tsukamoto from  
*Nanoscale*, 2024, **16**, 10533.

## REVIEWS

10500

### Advanced micro/nano-electroporation for gene therapy: recent advances and future outlook

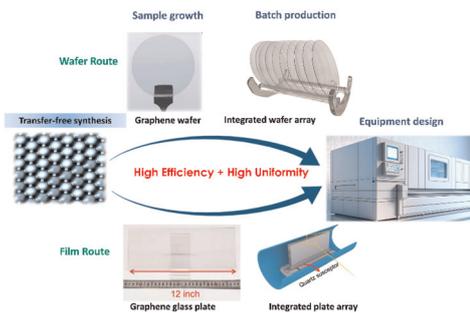
Feng Liu, Rongtai Su, Xinran Jiang, Siqi Wang, Wei Mu\* and Lingqian Chang\*



10522

### Recent advances in batch production of transfer-free graphene

Ye Fang, Kaixuan Zhou, Wenzhe Wei, Jincan Zhang\* and Jingyu Sun\*



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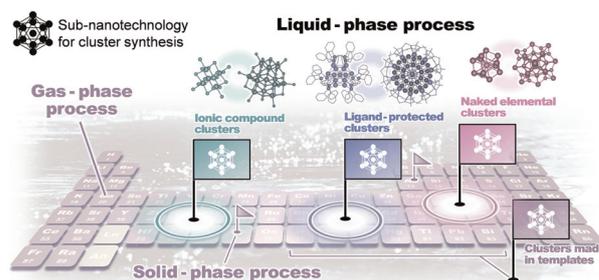
[rsc.li/icm](https://rsc.li/icm)

## MINIREVIEWS

10533

## Recent advances in atomic cluster synthesis: a perspective from chemical elements

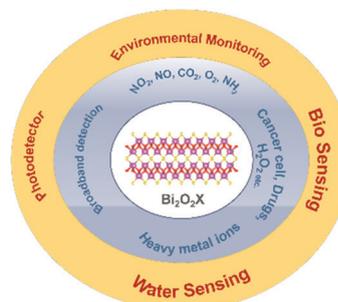
Takamasa Tsukamoto



10551

## Recent advances in bismuth oxychalcogenide nanosheets for sensing applications

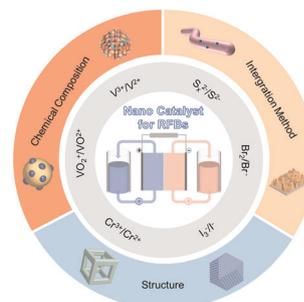
Amit Kumar Shringi, Rajeev Kumar and Fei Yan



10566

## The design engineering of nanocatalysts for high power redox flow batteries

Jinji Lan, Huilei Wu, Le Yang\* and Jijia Chen\*

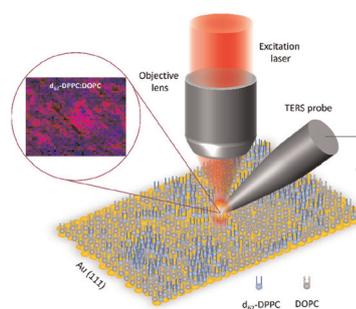


## COMMUNICATION

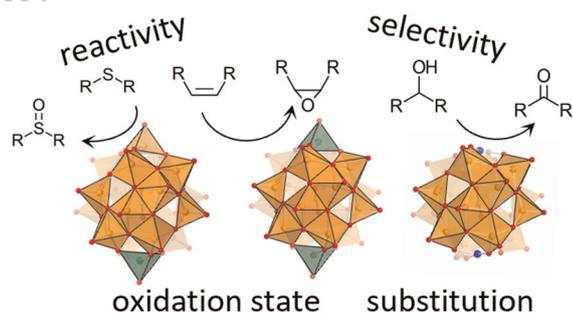
10578

## Nanoscale visualization of phase separation in binary supported lipid monolayer using tip-enhanced Raman spectroscopy

Yashashwa Pandey, Andrea Ingold, Naresh Kumar\* and Renato Zenobi\*



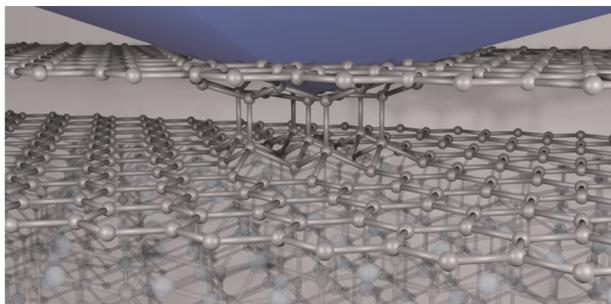
10584



### Reactivity control of nitrate-incorporating octadecavanadates by changing the oxidation state and metal substitution

Isshin Yoshida, Yuji Kikukawa,\* Ryoji Mitsuhashi and Yoshihito Hayashi

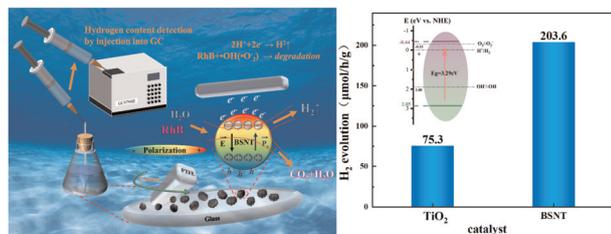
10590



### Impact of metastable graphene-diamond coatings on the fracture toughness of silicon carbide

Martin Rejhon,\* Václav Dědič, Mykhailo Shestopalov, Jan Kunc and Elisa Riedo\*

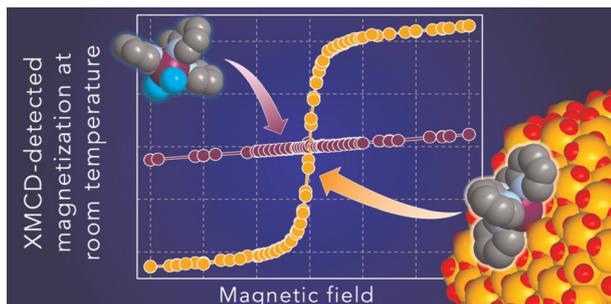
10597



### Ferroelectric field enhanced tribocatalytic hydrogen production and RhB dye degradation by tungsten bronze ferroelectrics

Zhihong Zhu, Zuheng Jin, Chuan Jiang, Sha Wu, Changzheng Hu,\* Lajun Liu, Liang Fang and Zhenxiang Cheng\*

10607



### Room-temperature-persistent magnetic interaction between coordination complexes and nanoparticles in maghemite-based nanohybrids

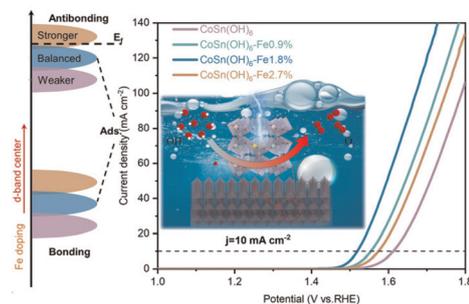
Leonardo Curti, Yoann Prado, Aude Michel, Delphine Talbot, Benoît Baptiste, Edwige Otero, Philippe Ohresser, Yves Journaux, Christophe Cartier-dit-Moulin, Vincent Dupuis, Benoit Fleury, Philippe Saintavit, Marie-Anne Arrio,\* Jérôme Fresnais\* and Laurent Lisnard\*



10618

### Perovskite $\text{CoSn}(\text{OH})_6$ nanocubes with tuned d-band states towards enhanced oxygen evolution reactions

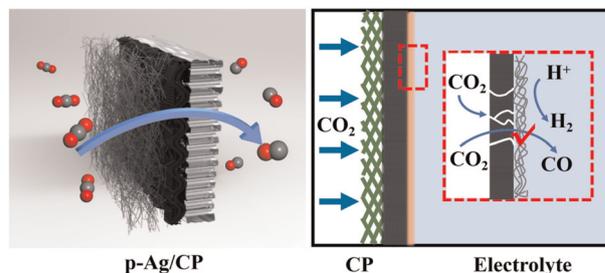
Mingwei Sun, Baopeng Yang, Jiaying Yan, Yulong Zhou, Zhencong Huang, Ning Zhang,\* Rong Mo\* and Renzhi Ma\*



10628

### Easily constructed porous silver films for efficient catalytic $\text{CO}_2$ reduction and Zn- $\text{CO}_2$ batteries

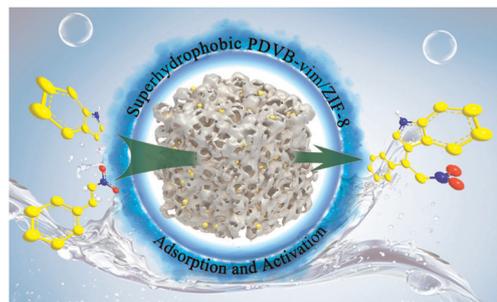
Junyang Ding, Tianran Wei, Tong Hou, Weijia Liu, Qian Liu, Hao Zhang,\* Jun Luo and Xijun Liu\*



10637

### Superhydrophobic MOF/polymer composite with hierarchical porosity for boosting catalytic performance in an humid environment

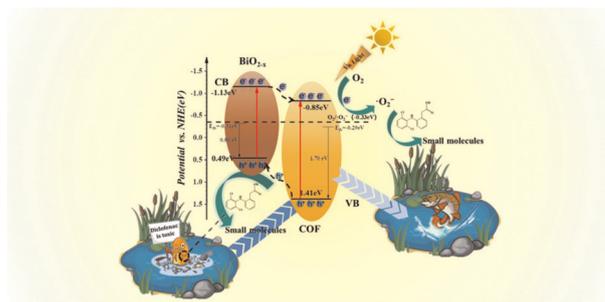
Ming-Liang Gao, Shuo Liu, Lin Liu\* and Zheng-Bo Han\*



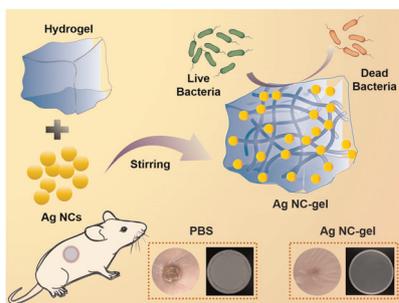
10645

### An oxygen vacancy-rich $\text{BiO}_{2-x}$ /COF heterojunction for photocatalytic degradation of diclofenac

Yuze Wu, Jingchao Liu, Jinxia Zhao, Chunhong Jin, Hailong Ren, Yilin Yin\* and Zenghe Li\*



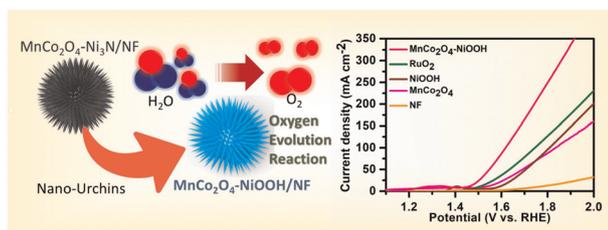
10656



### A hydrogel-functionalized silver nanocluster for bacterial-infected wound healing

Zhezhen Wei, Tingting Xu, Cong Wang, Shuai Liu, Wenjing Zhang, Jianan Sun, Huan Yu,\* Hui Shi\* and Yongbo Song\*

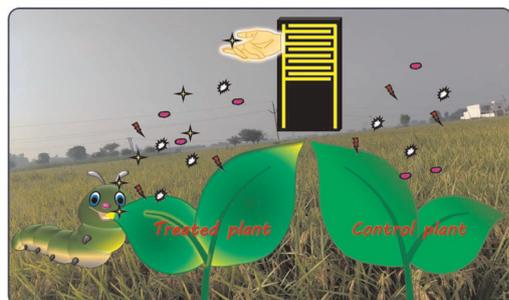
10663



### Electronic redistribution through the interface of $\text{MnCo}_2\text{O}_4\text{-Ni}_3\text{N}$ nano-urchins prompts rapid *In situ* phase transformation for enhanced oxygen evolution reaction

Ashish Gaur, Aashi, Joel Mathew John, Vikas Pundir, Rajdeep Kaur, Jatin Sharma, Kaustubhi Gupta, Chandan Bera and Vivek Bagchi\*

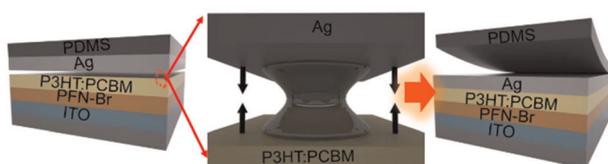
10675



### Sensing nature's alarm: $\text{SnO}_2/\text{MXene}$ gas sensor unveils methyl jasmonate signatures of plant insect stress

Prem Kumar, Sarita Kataria, Kesavan Subaharan, Mahima Chandel, Bandana Kumari Sahu, Parul Sharma and Vijayakumar Shanmugam\*

10682



### All-printed organic photodetectors with metal electrodes enabled by one-step solvent-mediated transfer printing technology

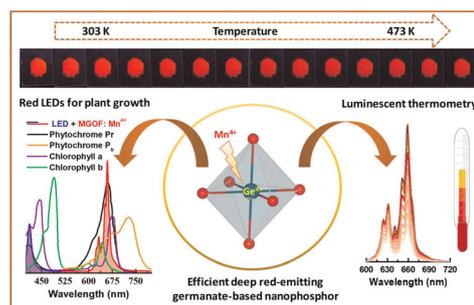
Pengchao Zhou, Jialu Gu, Lei Fan, Jipeng Ma, Hong Lian, Wei Shi\* and Bin Wei\*



10690

## A highly efficient deep red-emitting Mn<sup>4+</sup>-powered oxyfluoride nanophosphor developed for plant growth and optical thermometric applications

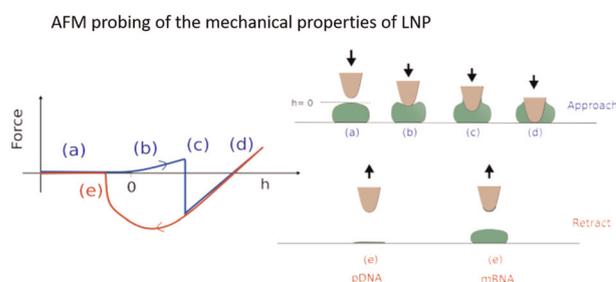
Malini Abraham, Jatin Dhanuka, Sudipta Som,\* Mukesh K. Pandey and Subrata Das\*



10706

## The mechanical properties of lipid nanoparticles depend on the type of biomacromolecule they are loaded with

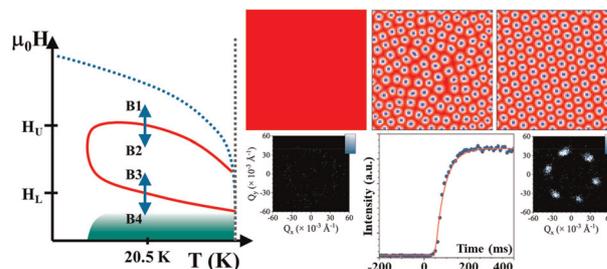
Sixtine de Chateaufneuf-Randon, Bruno Bresson,\* Manon Ripoll,\* Sylvain Huille,\* Etienne Barthel and Cécile Monteux



10715

## Skyrmion lattice formation and destruction mechanisms probed with TR-SANS

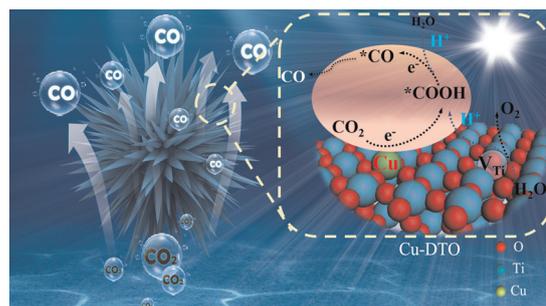
W. L. N. C. Liyanage, Nan Tang, Rebecca L. Dally, Elizabeth J. Quigley, C. Charlotte Buchanan, Guo-Jiun Shu, Nicholas P. Butch, Kathryn Krycka, Markus Bleuel, Julie A. Borchers, Lisa Debeer-Schmitt and Dustin A. Gilbert\*



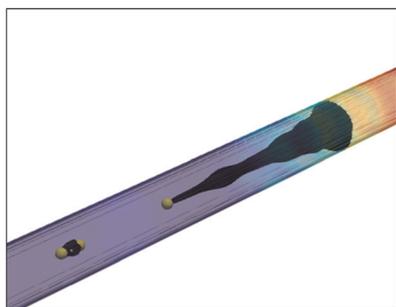
10727

## Synergistic effect of atomically dispersed Cu species and Ti-defects for boosting photocatalytic CO<sub>2</sub> reduction over hierarchical TiO<sub>2</sub>

Peijiao Chen, Zhijun Li,\* Pengze Wang, Yuxin Yao, Tianwei Dou, Yang Qu and Liqiang Jing



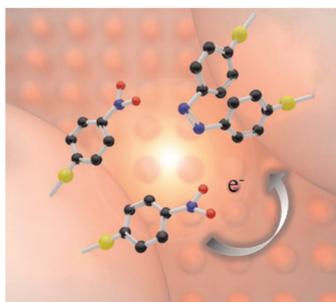
10737



### Giant supermagnonic Bloch point velocities in cylindrical ferromagnetic nanowires

Felipe Tejo, Jose Angel Fernandez-Roldan, Konstantin Y. Guslienko, Rubén M. Otxoa and Oksana Chubykalo-Fesenko\*

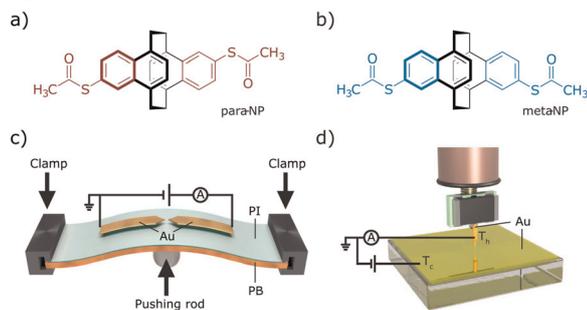
10745



### Thermal-effect dominated plasmonic catalysis on silver nanoislands

Ting Kong, Bowen Kang, Wei Wang, Tanja Deckert-Gaudig, Zhenglong Zhang\* and Volker Deckert\*

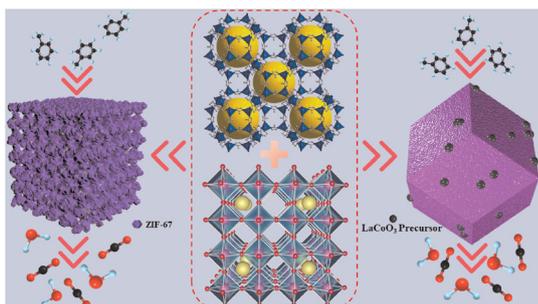
10751



### Benchmarking break-junction techniques: electric and thermoelectric characterization of naphthalenophanes

Juan Hurtado-Gallego, Sebastiaan van der Poel, Matthias Blaschke, Almudena Gallego, Chunwei Hsu, Rubén López-Nebreda, Marcel Mayor,\* Fabian Pauly,\* Nicolás Agrait\* and Herre S. J. van der Zant\*

10760



### Engineering Co<sub>3</sub>O<sub>4</sub>@3DOM LaCoO<sub>3</sub> multistage-pore nanoreactor with superior SO<sub>2</sub> resistance for toluene catalytic combustion

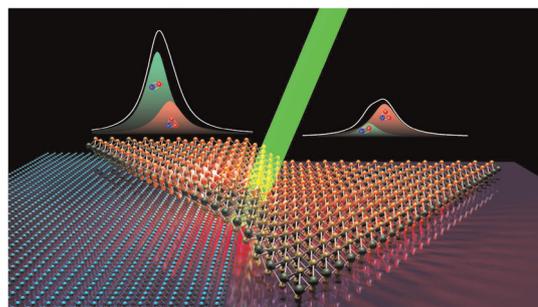
Zhan Shi, Fang Dong, Weiliang Han, Xiuyan Dong\* and Zhicheng Tang\*



10779

### Mitigating substrate effects of van der Waals semiconductors using perfluoropolyether self-assembled monolayers

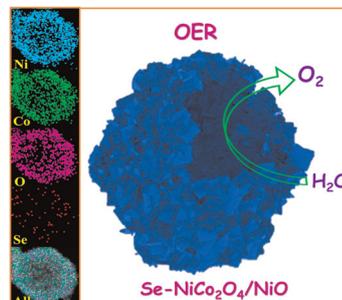
Dae Young Park, Hyeong Chan Suh, SeungHo Bang, Ju Chan Lee, Jaekak Yoo, Hayoung Ko, Soo Ho Choi, Ki Kang Kim, Seung Mi Lee, Seong Chu Lim, Tschang-Uh Nahm and Mun Seok Jeong\*



10789

### Selenium-enriched hollow NiCo<sub>2</sub>O<sub>4</sub>/NiO heterostructured nanocages as an efficient electrocatalyst for oxygen evolution reaction

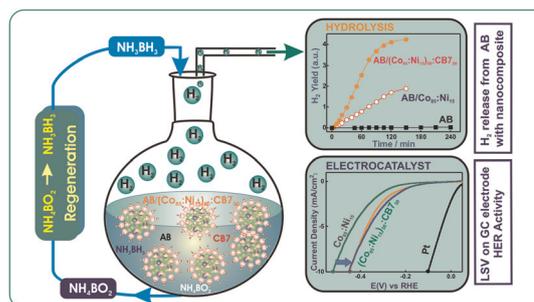
Vaibhav Namdev Kale and T. Maiyalagan\*



10801

### Dual catalytic activity of a cucurbit[7]uril-functionalized metal alloy nanocomposite for sustained hydrogen generation: hydrolysis of ammonia borane and electrocatalysts for the hydrogen evolution reaction

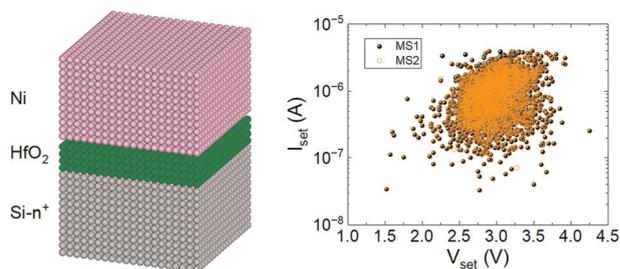
Dwaipayan Majumder, Suprotim Koley, Atanu Barik, Priyanka Ruz, Seemita Banerjee, Bathula Viswanadh, Nilotpal Barooah, Vaidehi S. Tripathi, Vasanthakumaran Sudarsan, Awadhesh Kumar, Avesh Kumar Tyagi, Achikanath C. Bhasikuttan\* and Jyotirmayee Mohanty\*



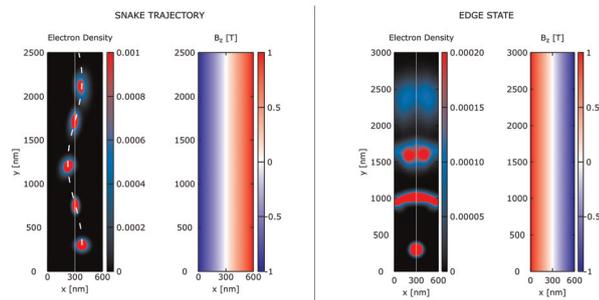
10812

### Variability in HfO<sub>2</sub>-based memristors described with a new bidimensional statistical technique

C. Acal, D. Maldonado, A. Cantudo, M. B. González, F. Jiménez-Molinos, F. Campabadal and J. B. Roldán\*



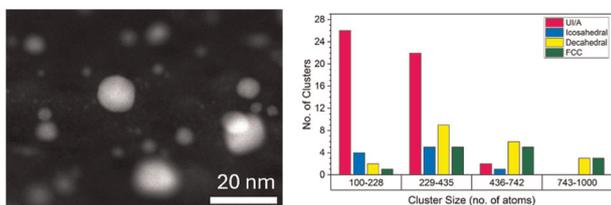
10819



### Non-uniform magnetic fields for single-electron control

Mauro Ballicchia,\* Clemens Etl, Mihail Nedjalkov and Josef Weinbub

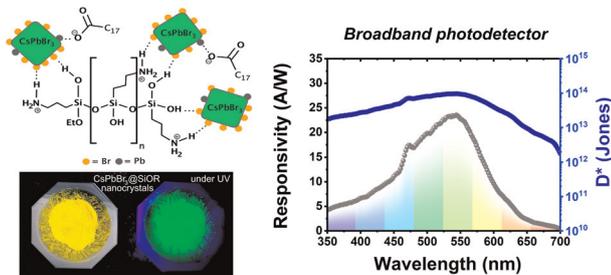
10827



### Characterisation of the morphology of surface-assembled Au nanoclusters on amorphous carbon

Malcolm Dearg, Sean Lethbridge, James McCormack, Richard E. Palmer\* and Thomas J. A. Slater\*

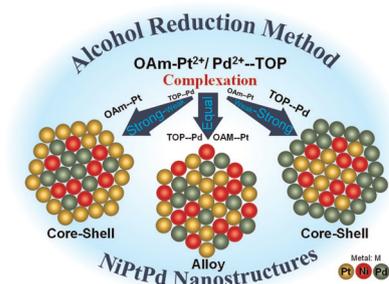
10833



### Broadband photodetectors from silane-passivated CsPbBr<sub>3</sub> nanocrystals by ultrasound-mediated synthesis

Fernando Ely,\* Kayo O. Vieira, Martin G. Reyes-Banda and Manuel Quevedo-Lopez

10841



### Synthesis of low-cost multi-element Pt-based alloy nanoparticles as catalysts for the oxygen reduction reaction

Jhon L. Cuya Huaman,\* Kaneyuki Taniguchi, Daichi Iwata, Kozo Shinoda, Shun Yokoyama, Hiroshi Miyamura and Jeyadevan Balachandran\*

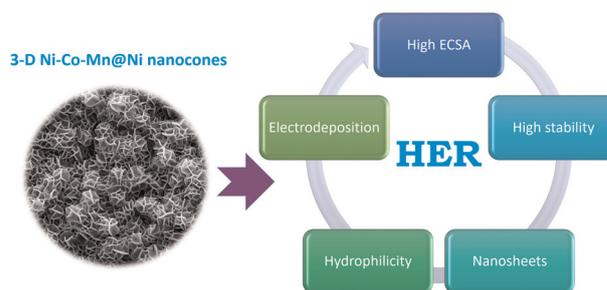


## PAPERS

10853

### Interfacial engineering of Ni–Co–Mn@Ni nanosheet–nanocone arrays as high performance non-noble metal electrocatalysts for hydrogen generation

Mostafa Nazemi, Ghasem Barati Darband\* and Ali Davoodi



## CORRECTION

10864

### Correction: Phosphorylation of collagen fibrils enhances intrafibrillar mineralization and dentin remineralization

Bo Zheng, Luyi Zhao, Lelu Chen, Haiyan Lai, Chengze Wang, Yi Chen, Changyu Shao,\* Ruikang Tang\* and Xinhua Gu\*

