

# Nanoscale Horizons

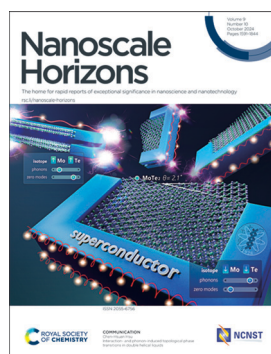
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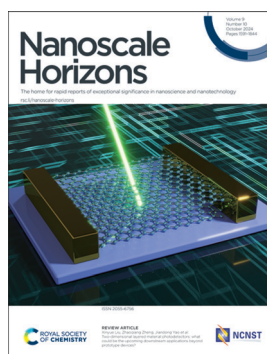
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ISSN 2055-6756 CODEN NHAOAW 9(10) 1591-1844 (2024)



### Cover

See Chen-Hsuan Hsu, pp. 1725–1731. Image reproduced by permission of Kai-Li Chien (SHO SHO Design Ltd.) from *Nanoscale Horiz.*, 2024, 9, 1725.



### Inside cover

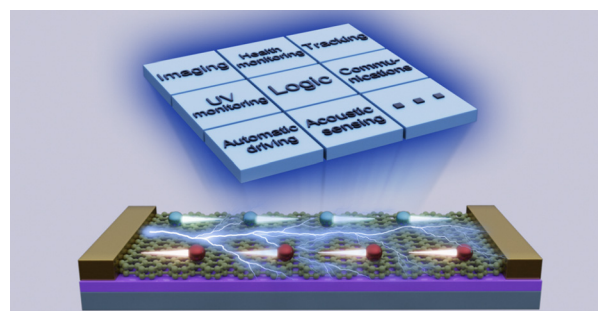
See Xinyue Liu, Zhaoqiang Zheng, Jiandong Yao *et al.*, pp. 1599–1629. Image reproduced by permission of Jiandong Yao from *Nanoscale Horiz.*, 2024, 9, 1599.

## REVIEWS

1599

### Two-dimensional layered material photodetectors: what could be the upcoming downstream applications beyond prototype devices?

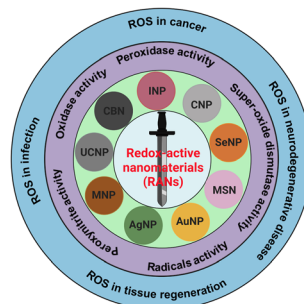
Yuhang Ma, Huanrong Liang, Xinyi Guan, Shuhua Xu, Meiling Tao, Xinyue Liu,\* Zhaoqiang Zheng,\* Jiandong Yao\* and Guowei Yang



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### Oxidative stress modulating nanomaterials and their biochemical roles in nanomedicine

Kapil D. Patel,\* Zalike Keskin-Erdogan, Prasad Sawadkar, Nik Syahirah Aliaa Nik Sharifulden, Mark Robert Shannon, Madhumita Patel, Lady Barrios Silva, Rajkumar Patel, David Y. S. Chau, Jonathan C. Knowles, Adam W. Perriman\* and Hae-Won Kim\*



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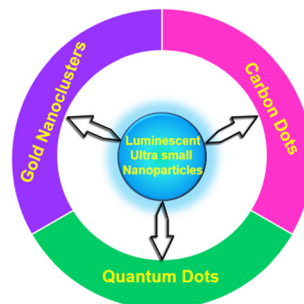
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## REVIEWS

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### Luminescent carbon dots versus quantum dots and gold nanoclusters as sensors

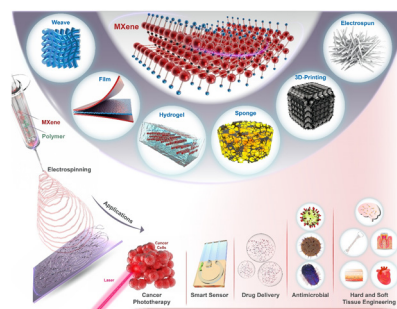
J. S. Anjali Devi,\* S. Madanan Anju, G. M. Lekha, R. S. Aparna and Sony George\*



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### Synergistic integration of MXene nanostructures into electrospun fibers for advanced biomedical engineering applications

Xiaobo Li, Shan Wang, Minyan Zheng, Zhanying Ma, Yan Chen, Lingjuan Deng, Weixia Xu, Guang Fan,\* Sanaz Khademolqorani, Seyedeh Nooshin Banitaba and Ahmed I. Osman\*

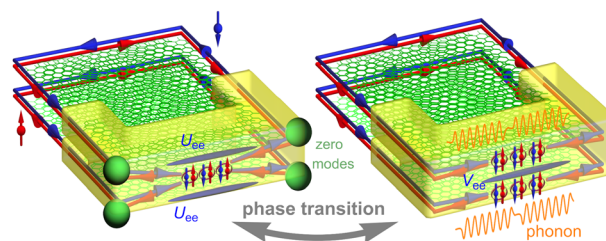


## COMMUNICATIONS

1725

### Interaction- and phonon-induced topological phase transitions in double helical liquids

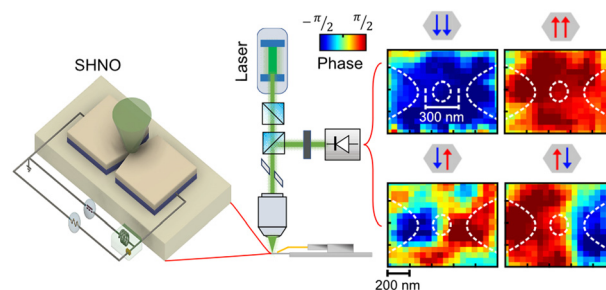
Chen-Hsuan Hsu



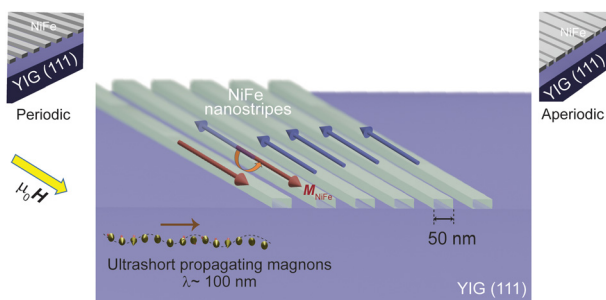
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### Phase and frequency-resolved microscopy of operating spin Hall nano-oscillator arrays

A. Alemán, A. A. Awad,\* S. Muralidhar, R. Khymyn, A. Kumar, A. Houshang, D. Hanstorp and J. Åkerman



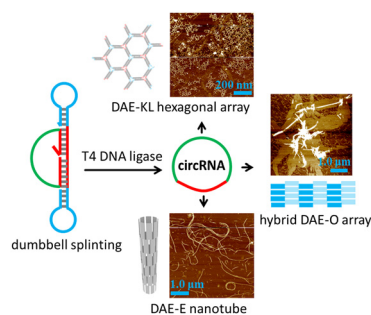
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### Reversing the magnetization of 50-nm-wide ferromagnets by ultrashort magnons in thin-film yttrium iron garnet

Shreyas S. Joglekar, Korbinian Baumgaertl, Andrea Mucchietto, Francis Berger and Dirk Grundler\*

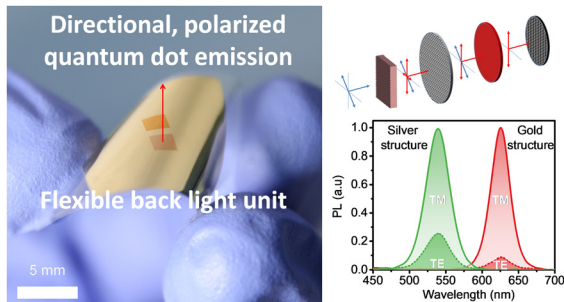
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### Circular RNA oligonucleotides: enzymatic synthesis and scaffolding for nanoconstruction

Shijie Li, Yanxin Chu, Xin Guo, Chengde Mao\* and Shou-Jun Xiao\*

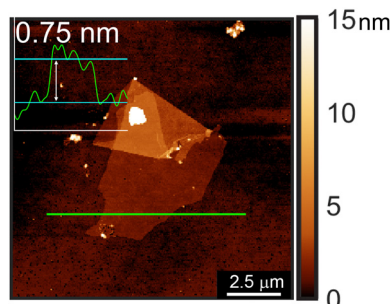
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### Strongly polarized color conversion of isotropic colloidal quantum dots coupled to fano resonances

Kivanc Gungor, Onur Erdem, Burak Guzelurk, Emre Unal, Shinae Jun, Eunjoo Jang and Hilmi Volkan Demir\*

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### Freestanding monolayer CrOCl through chemical exfoliation

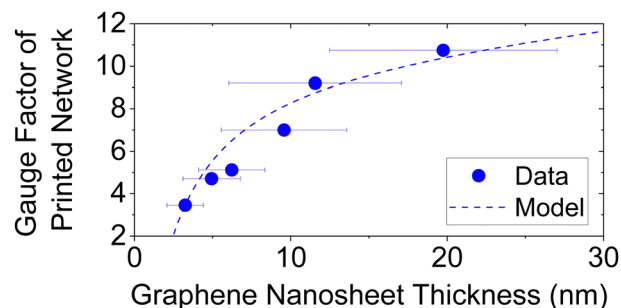
Graciela Villalpando, Jiase Xie, Nitish Mathur, Guangming Cheng, Nan Yao and Leslie M. Schoop\*



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### Quantifying the effect of nanosheet dimensions on the piezoresistive response of printed graphene nanosheet networks

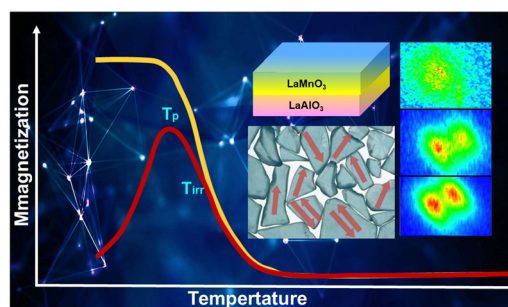
Eoin Caffrey, Jose M. Munuera, Tian Carey and Jonathan N. Coleman\*



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### Epitaxial strain manipulation of the cluster glass state in LaMnO<sub>3</sub> films

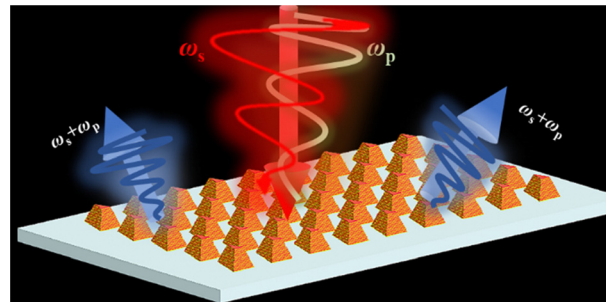
Yongmei Liang, Haonan Lian, Yaqiang Li, Dan Liu, Baochen Han,\* Jian Qi\* and Dongxiao Ma\*



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### Ultrabroadband nonlinear enhancement of mid-infrared frequency upconversion in hyperbolic metamaterials

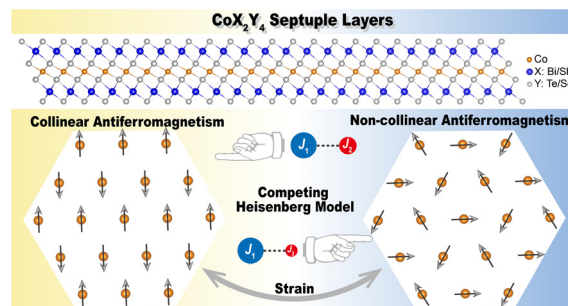
Congfu Zhang, Zhaolu Wang, Changchang Zhang, Wenjuan Shi, Wei Li, Ke Gao and Hongjun Liu\*



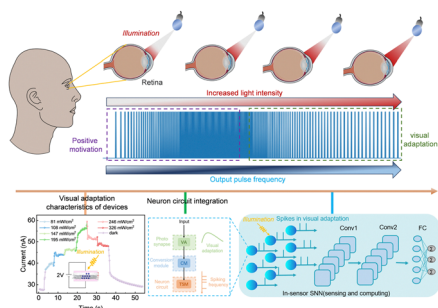
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### CoX<sub>2</sub>Y<sub>4</sub>: a family of two-dimensional magnets with versatile magnetic order

Ziyuan Zhao,\* Zhao Liu, Mark T. Edmonds and Nikhil V. Medhekar\*



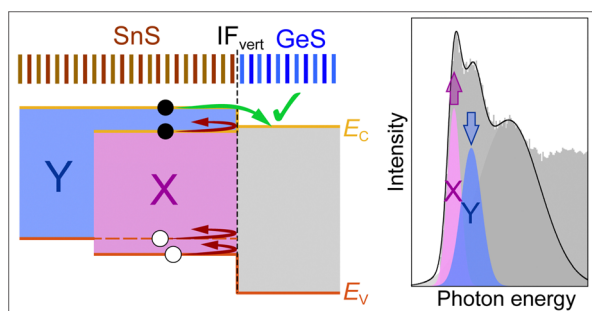
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### Harnessing a silicon carbide nanowire photoelectric synaptic device for novel visual adaptation spiking neural networks

Zhe Feng, Shuai Yuan, Jianxun Zou, Zuheng Wu,\*  
Xing Li, Wenbin Guo, Su Tan, Haochen Wang, Yang Hao,  
Hao Ruan, Zhihao Lin, Zuyu Xu, Yunlai Zhu,  
Guodong Wei\* and Yuehua Dai\*

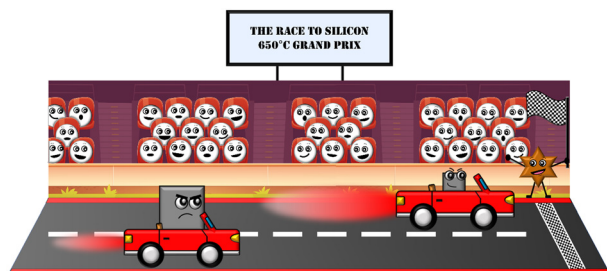
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### Valley-selective carrier transfer in SnS-based van der Waals heterostructures

E. Sutter,\* H.-P. Komsa and P. Sutter\*

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### Unlocking the secrets of porous silicon formation: insights into magnesiothermic reduction mechanism using *in situ* powder X-ray diffraction studies

Sarah A. Martell, Maximilian Yan, Robert H. Coridan,  
Kevin H. Stone, Siddharth V. Patwardhan\* and  
Mita Dasog\*

