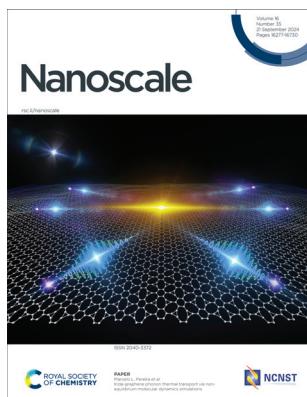


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### Cover

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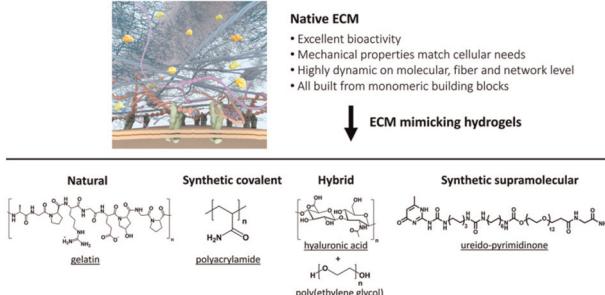
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### Mimicking the extracellular world: from natural to fully synthetic matrices utilizing supramolecular biomaterials

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Patricia Y. W. Dankers\*



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### Carbon materials and their metal composites for biomedical applications: A short review

Su-Bin Kim, Choong-Hee Kim, Seul-Yi Lee\* and  
Soo-Jin Park\*



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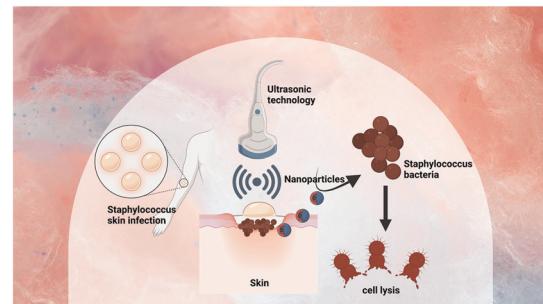
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## REVIEWS

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**Ultrasonic nanotechnology for the effective management of *Staphylococcus aureus* skin infections: an update**

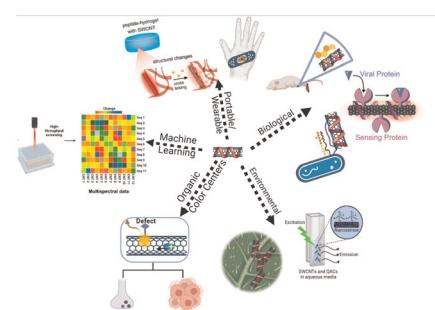
Naveen Thanjavur, Anantha Lakshmi Buddolla, Laxmi Bugude, Viswanath Buddolla\* and Young-Joon Kim\*



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**Recent advances on applications of single-walled carbon nanotubes as cutting-edge optical nanosensors for biosensing technologies**

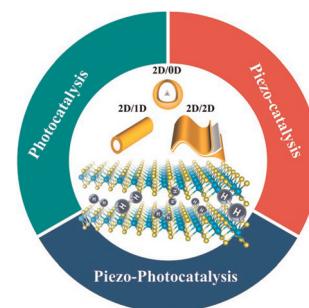
Hannah M. Dewey, Ashley Lamb and Januka Budhathoki-Uprety\*



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**Advances in the heterostructures for enhanced hydrogen production efficiency: a comprehensive review**

Chen-Yo Tsai, Wei-Hsuan Chang, Ming-Yen Lu\* and Lih-Juann Chen\*

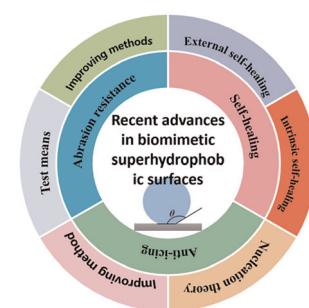


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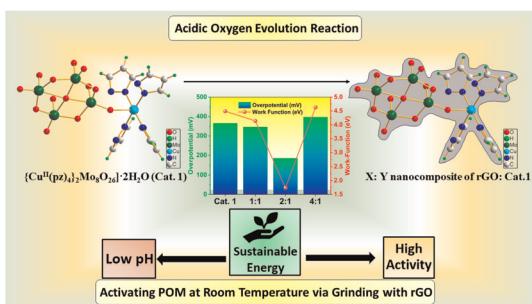
**Recent advances in biomimetic superhydrophobic surfaces: focusing on abrasion resistance, self-healing and anti-icing**

Jing Luo and Zhiguang Guo\*



## COMMUNICATION

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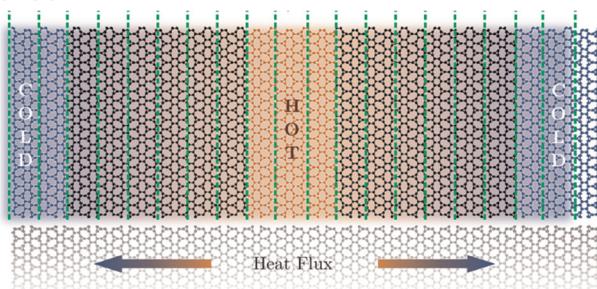


### Deciphering the work function induced local charge regulation towards activating an octamolybdate cluster-based solid for acidic water oxidation

Harshita Bagdwal, Parul Sood, Arshminder Kaur Dhillon, Ashi Singh and Monika Singh\*

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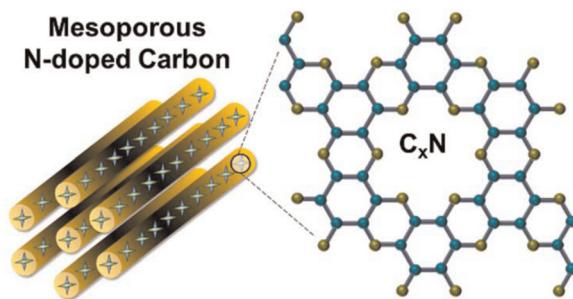
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### Irida-graphene phonon thermal transport via non-equilibrium molecular dynamics simulations

Isaac M. Felix, Raphael M. Tromer, Leonardo D. Machado, Douglas S. Galvão, Luiz A. Ribeiro, Jr and Marcelo L. Pereira, Jr\*

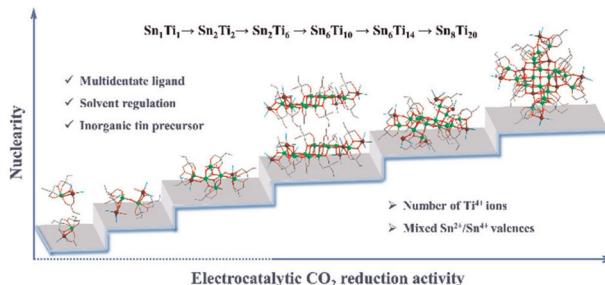
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### Aminotriazine derived N-doped mesoporous carbon with a tunable nitrogen content and their improved oxygen reduction reaction performance

Jefrin M. Davidraj, C. I. Sathish,\* Premkumar Selvarajan, Mohammed Fawaz, Viben Perumalsamy, Xiaojiang Yu, Mark B. H. Breese, Jiabao Yi\* and Ajayan Vinu\*

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### Modulated assembly and structural diversity of heterometallic Sn–Ti oxo clusters from inorganic tin precursors

Hui-Fang Zhao, Fang-Fang Liu, Qing-Rong Ding, Di Wang, Jian Zhang and Lei Zhang\*

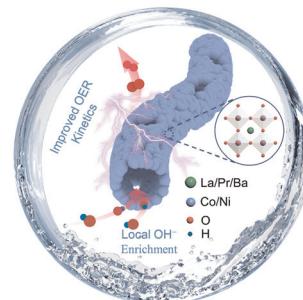


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## Local hydroxide ion enrichment at the inner surface of lacunaris perovskite nanotubes facilitates the oxygen evolution reaction

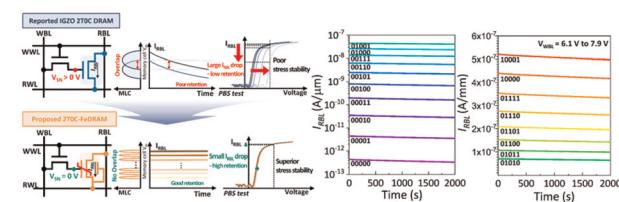
Lin-Bo Liu, Shuo Liu, Yu-Feng Tang, Yifei Sun, Xian-Zhu Fu, Jing-Li Luo and Subiao Liu\*



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## First demonstration of 2T0C-FeDRAM: a-ITZO FET and double gate a-ITZO/a-IGZO FeFET with a record-long multibit retention time of >4-bit and >2000 s

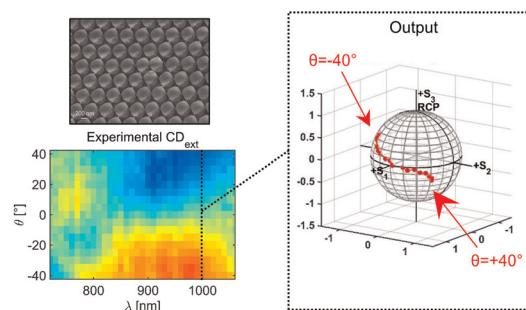
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## Extrinsic chirality tailors Stokes parameters in simple asymmetric metasurfaces

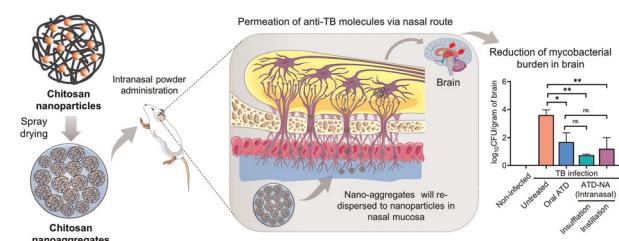
Emilija Petronijevic,\* Tiziana Cesca, Carlo Scian, Giovanni Mattei, Roberto Li Voti, Concita Sibilia and Alessandro Belardini



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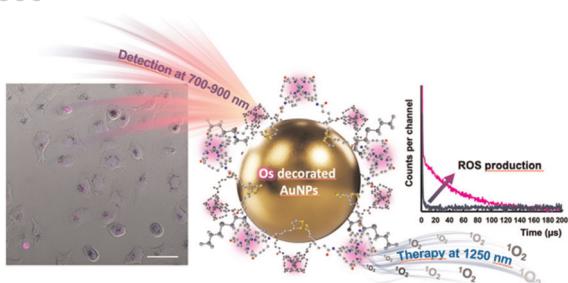
## Effective cerebral tuberculosis treatment via nose-to-brain transport of anti-TB drugs using mucoadhesive nano-aggregates

Krishna Jadhav, Agrim Jhilta, Raghuraj Singh, Eupa Ray, Vimal Kumar, Awadh Bihari Yadav, Amit Kumar Singh\* and Rahul Kumar Verma\*



## PAPERS

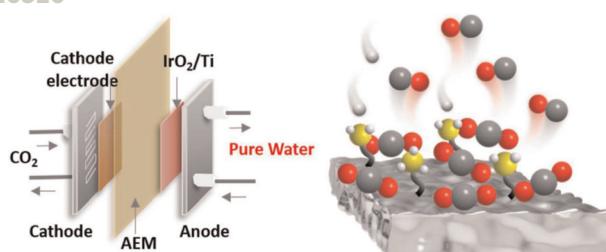
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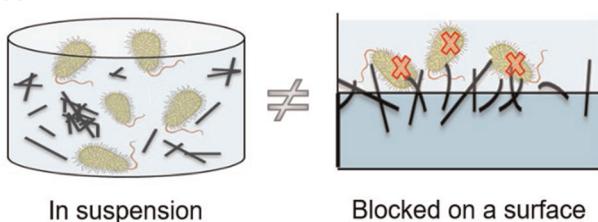
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### Amino-functionalization enhanced $\text{CO}_2$ reduction reaction in pure water

Junfeng Chen, Wenzhe Niu, Liangyao Xue, Kai Sun, Xiao Yang, Xinyue Zhang, Weihang Li, Shuanglong Huang, Wenjuan Shi\* and Bo Zhang\*

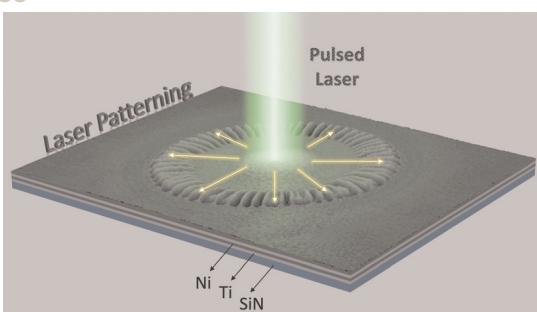
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### Surface-anchored carbon nanomaterials for antimicrobial surfaces

L. Giraud, O. Marsan, E. Dague, M. Ben-Neji, C. Cougoule, E. Meunier, S. Soueid, A. M. Galibert, A. Tourrette\* and E. Flahaut\*

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### Laser patterning captured in real-time: surface modifications of multilayer thin-films under nanosecond laser heating

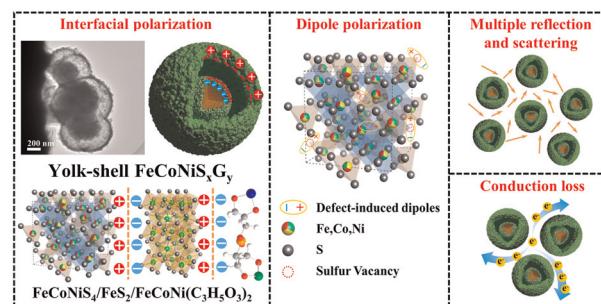
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**Design of a yolk–shell ternary metal sulfide with a tunable structure for high-performance electromagnetic wave absorption**

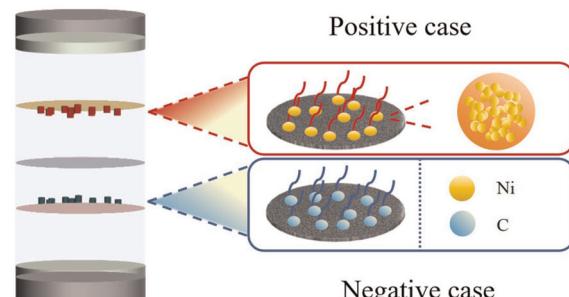
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**Fabrication and assembly of supercapacitors based on Ni-based MOFs and their derivative materials for enhancing their electrochemical performances**

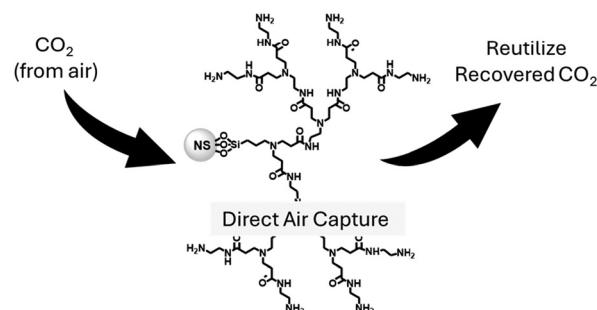
Wen-Ze Li, Ying Yang, Xiao-Sa Zhang, Yu Liu and Jian Luan\*



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**Nanosilica polyamidoamine dendrimers for enhanced direct air  $\text{CO}_2$  capture**

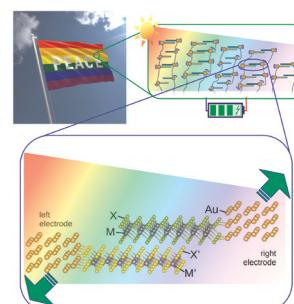
Vaishnavi Kulkarni, Jayashree Parthiban and Sanjay Kumar Singh\*



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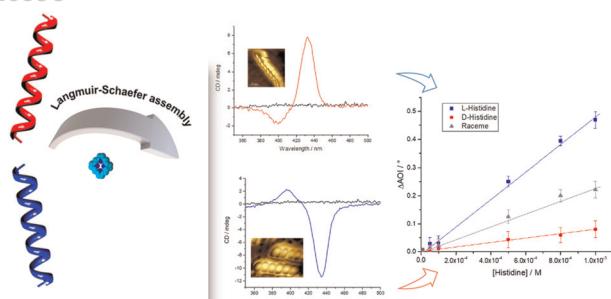
**First-principles guidelines to select promising van der Waals materials for hybrid photovoltaic–triboelectric nanogenerators**

Antonio Cammarata,\* Jemal Yimer Damte\* and Tomas Polcar



## PAPERS

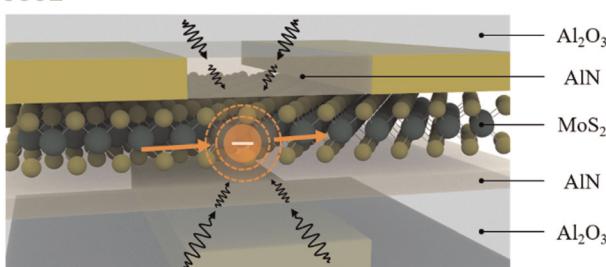
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### Chirality induction to porphyrin derivatives co-confined at the air–water interface with silica nano-helices: towards enantioselective thin solid film surfaces

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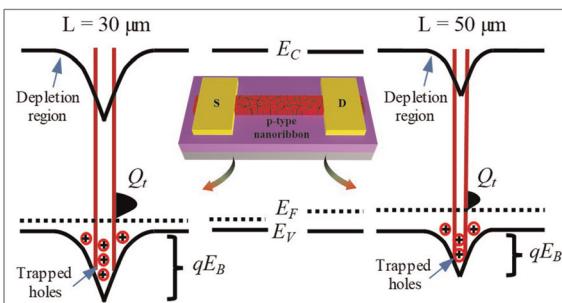
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### Suppression of surface optical phonon scattering by AlN interfacial layers for mobility enhancement in MoS<sub>2</sub> FETs

Woonggi Hong, Gi Woong Shim, Hyeok Jun Jin, Hamin Park, Mingu Kang, Sang Yoon Yang and Sung-Yool Choi\*

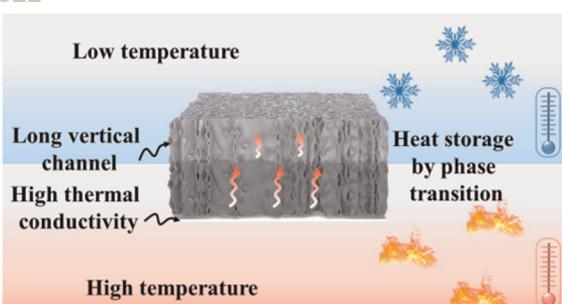
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### On the grain boundary charge transport in p-type polycrystalline nanoribbon transistors

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### Multifunctional phase-change composites for green electromagnetic interference shielding and thermal response prepared under the guidance of an impedance matching strategy

Jie He, Jiaozu Wu, Chul B. Park, Pengjian Gong,\* Chaobo Liang\* and Guangxian Li

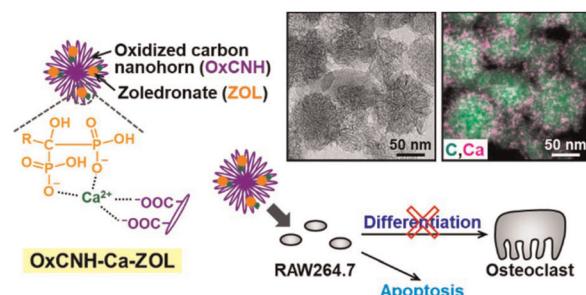


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**Calcium-mediated zoledronate loading onto carbon nanohorns**

Maki Nakamura,\* Yumiko Yamamoto, Minfang Zhang, Katsuya Ueda, Kaoru Aoki, Naoto Saito and Masako Yudasaka\*

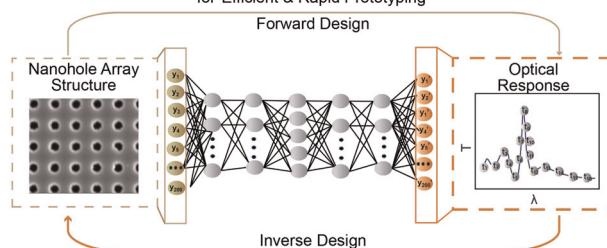


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**Deep learning-driven forward and inverse design of nanophotonic nanohole arrays: streamlining design for tailored optical functionalities and enhancing accessibility**

Tasnia Jahan, Tomoshree Dash, Shifat E. Arman, Reefat Inum, Sharnali Islam, Lafifa Jamal, Ahmet Ali Yanik and Ahsan Habib\*

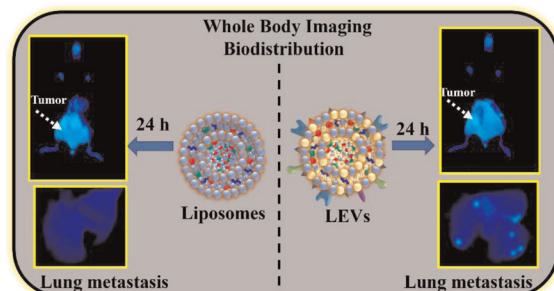
Deep Learning-Driven Forward and Inverse Design of Nanohole Arrays  
for Efficient & Rapid Prototyping



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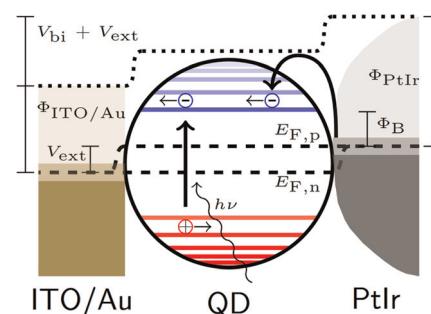
Shoukath Sulthana, Dinesh Shrestha and Santosh Aryal\*



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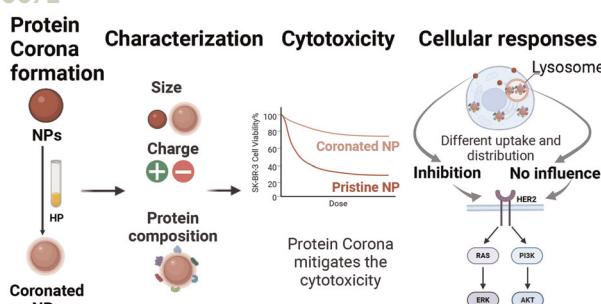
**Quantitative photocurrent scanning probe microscopy on PbS quantum dot monolayers**

Florian Küstner, Harald Ditlbacher, Andreas Hohenau, Dmitry N. Dirin, Maksym Kovalenko and Joachim R. Krenn\*

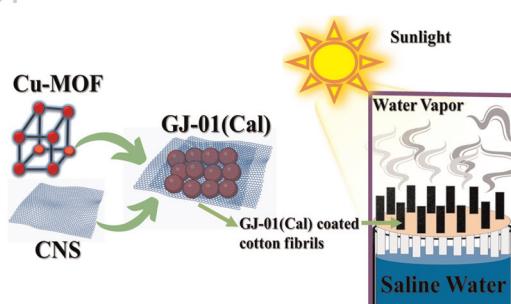


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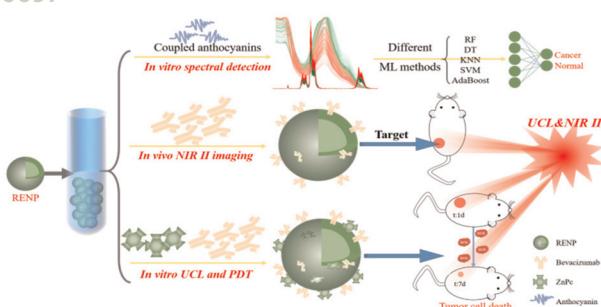
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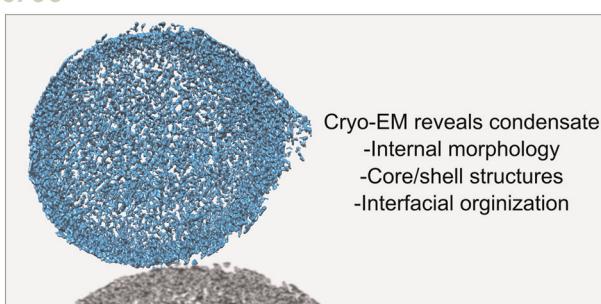
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## Protein corona alleviates adverse biological effects of nanoplastics in breast cancer cells

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## *De novo* Cu-MOF@CNS nanocomposite coated on a cotton fibrils framework for sustainable solar-driven desalination

Geetika Jain, Sinu Sanghamitra, Monalisa Mukherjee, Mrinal Kanti Mandal,\* Rajib Ghosh Chaudhuri\* and Sandip Chakrabarti\*

## Upconversion and NIR-II luminescent rare earth nanoparticles combined with machine learning for cancer theranostics

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## Revealing nanoscale structure and interfaces of protein and polymer condensates *via* cryo-electron microscopy

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Filippo Giubileo,\* Enver Faella, Daniele Capista, Maurizio Passacantando, Ofelia Durante, Arun Kumar, Aniello Pelella, Kimberly Intonti, Loredana Viscardi, Sebastiano De Stefano, Nadia Martuccioello, Monica F. Craciun, Saverio Russo and Antonio Di Bartolomeo\*

