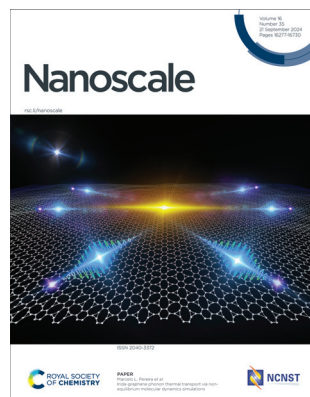


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ISSN 2040-3372 CODEN NANOHL 16(35) 16277–16730 (2024)



Cover

See Marcelo L. Pereira *et al.*,
pp. 16430–16438.

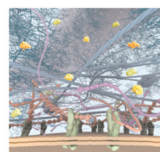
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REVIEWS

16290

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

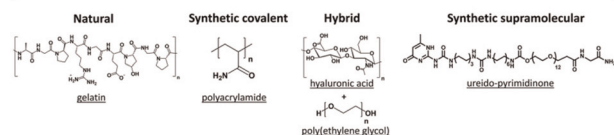
Laura Rijns, Martin G. T. A. Rutten, Annika F. Vrethen,
Ana A. Aldana, Matthew B. Baker and
Patricia Y. W. Dankers*



Native ECM

- Excellent bioactivity
- Mechanical properties match cellular needs
- Highly dynamic on molecular, fiber and network level
- All built from monomeric building blocks

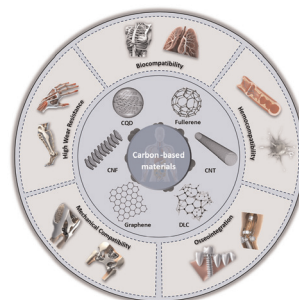
↓ ECM mimicking hydrogels



16313

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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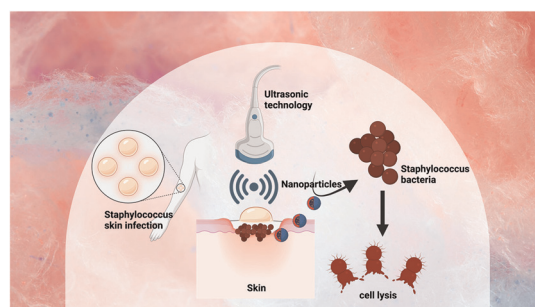
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REVIEWS

16329

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

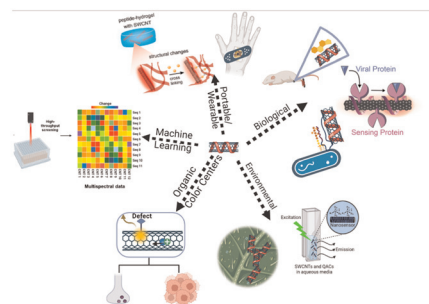
Naveen Thanjavur, Anantha Lakshmi Buddolla, Laxmi Bugude, Viswanath Buddolla* and Young-Joon Kim*



16344

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

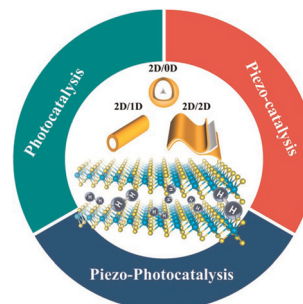
Hannah M. Dewey, Ashley Lamb and Januka Budhathoki-Uprety*



16376

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*

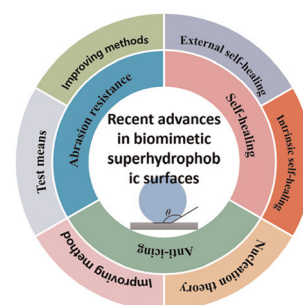


MINIREVIEW

16404

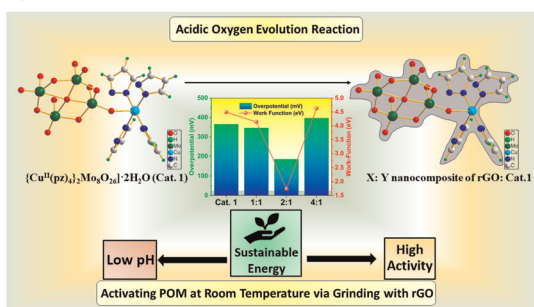
Recent advances in biomimetic superhydrophobic surfaces: focusing on abrasion resistance, self-healing and anti-icing

Jing Luo and Zhiguang Guo*



COMMUNICATION

16420

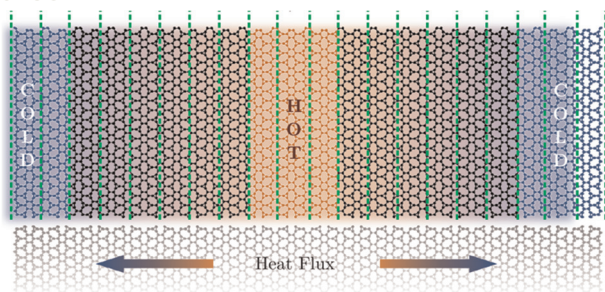


Deciphering the work function induced local charge regulation towards activating an octamolybdate cluster-based solid for acidic water oxidation

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

PAPERS

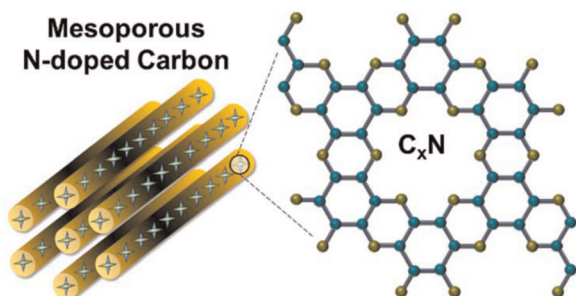
16430



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*

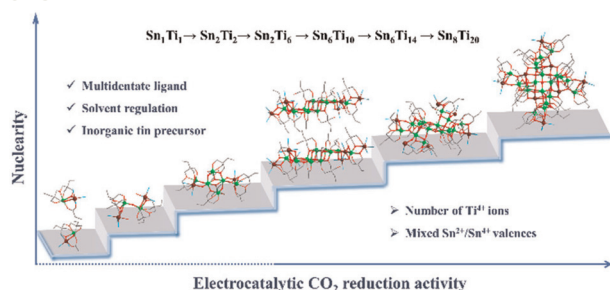
16439



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

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

16451



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

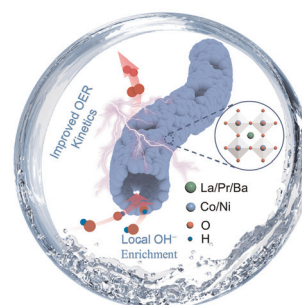
Hui-Fang Zhao, Fang-Fang Liu, Qing-Rong Ding, Di Wang, Jian Zhang and Lei Zhang*



16458

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

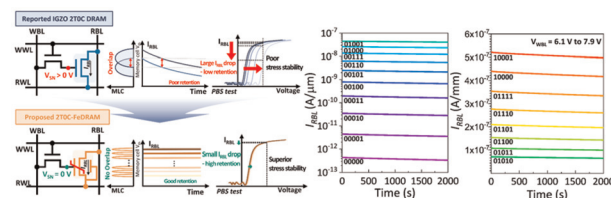
Lin-Bo Liu, Shuo Liu, Yu-Feng Tang, Yifei Sun, Xian-Zhu Fu, Jing-Li Luo and Subiao Liu*



16467

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

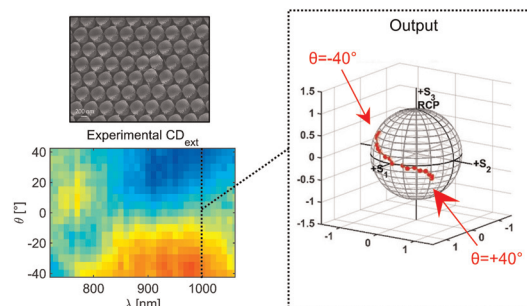
Tae Hyeon Noh, Simin Chen, Hyo-Bae Kim, Taewon Jin, Seoung Min Park, Seong Ui An, Xinkai Sun, Jaekyun Kim, Jae-Hoon Han, Ji-Hoon Ahn,* Dae-Hwan Ahn* and Younghyun Kim*



16477

Extrinsic chirality tailors Stokes parameters in simple asymmetric metasurfaces

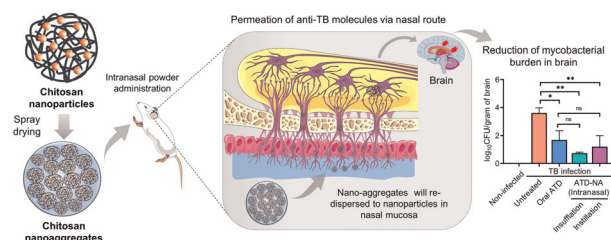
Emilija Petronijevic,* Tiziana Cesca, Carlo Scian, Giovanni Mattei, Roberto Li Voti, Concita Sibilia and Alessandro Belardini



16485

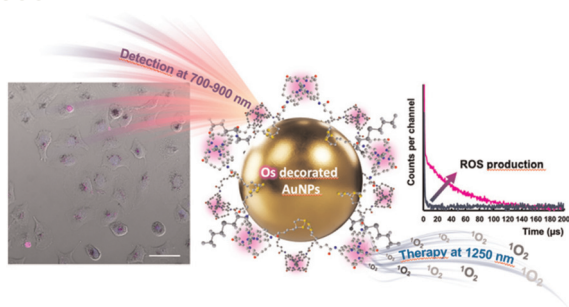
Effective cerebral tuberculosis treatment via nose-to-brain transport of anti-TB drugs using mucoadhesive nano-aggregates

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



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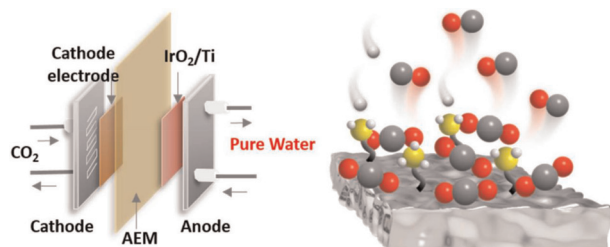
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Near infra-red luminescent osmium labelled gold nanoparticles for cellular imaging and singlet oxygen generation

Luke S. Watson, Joseph Hughes, Salma T. Rafik, Asier R. Muguruza, Patricia M. Girio, Sarah O. Akponasa, Garret Rochford, Alexander J. MacRobert, Nikolas J. Hodges, Elnaz Yaghini and Zoe Pikramenou*

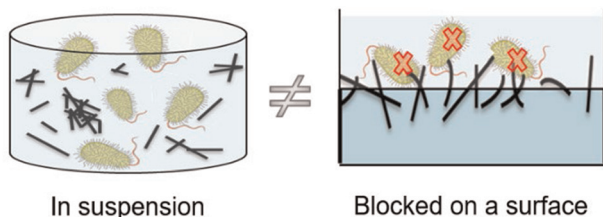
16510



Amino-functionalization enhanced CO₂ 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*

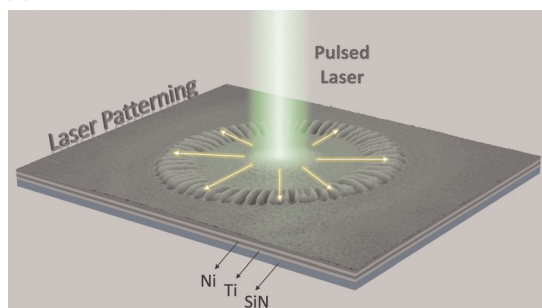
16517



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*

16535



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

Tugba Isik, Mason Freund, Will Linthicum, Bryan D. Huey and Volkan Oraltan*

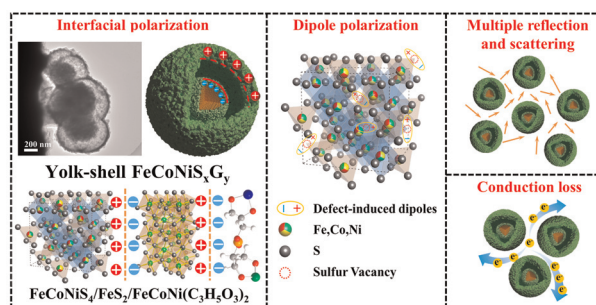


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Design of a yolk–shell ternary metal sulfide with a tunable structure for high-performance electromagnetic wave absorption

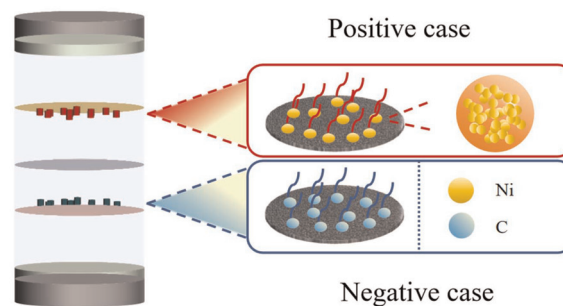
Zhaobo Liu, Yan Zhao* and Zhiwei Liu*



16556

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

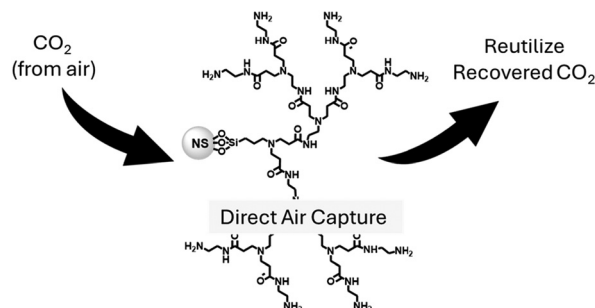
Wen-Ze Li, Ying Yang, Xiao-Sa Zhang, Yu Liu and Jian Luan*



16571

Nanosilica polyamidoamine dendrimers for enhanced direct air CO₂ capture

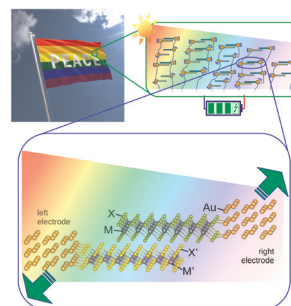
Vaishnavi Kulkarni, Jayashree Parthiban and Sanjay Kumar Singh*



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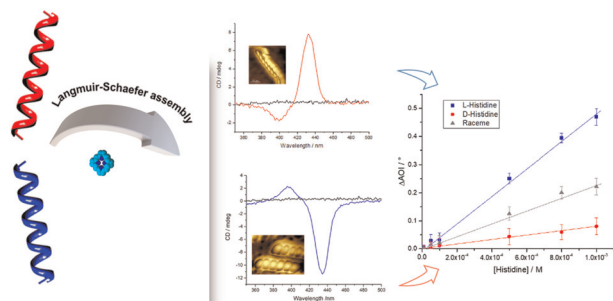
First-principles guidelines to select promising van der Waals materials for hybrid photovoltaic–triboelectric nanogenerators

Antonio Cammarata,* Jemal Yimer Damte* and Tomas Polcar



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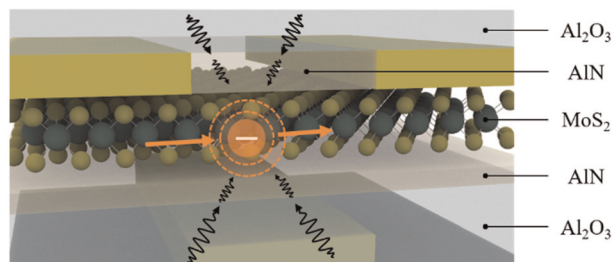
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Chirality induction to porphyrin derivatives co-confined at the air–water interface with silica nano-helices: towards enantioselective thin solid film surfaces

Michela Ottolini, Zakaria Anfar, Nitika Grover, Gabriele Magna, Manuela Stefanelli, Roberto Paolesse, Mathias O. Senge, Simona Bettini,* Ludovico Valli, Reiko Oda* and Gabriele Giancane

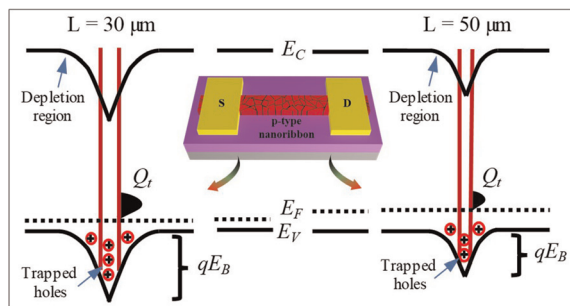
16602



Suppression of surface optical phonon scattering by AlN interfacial layers for mobility enhancement in MoS₂ FETs

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

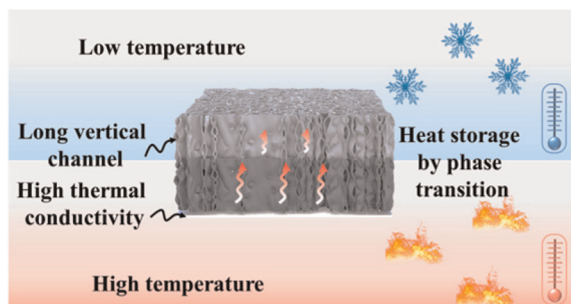
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On the grain boundary charge transport in p-type polycrystalline nanoribbon transistors

Prakash Sarkar, A. V. Muhammed Ali, Gurupada Ghorai, Prabhanjan Pradhan, Biplab K. Patra, Abhay A. Sagade* and K. D. M. Rao*

16622



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

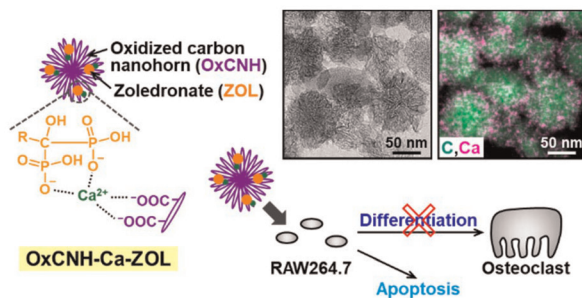


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Calcium-mediated zoledronate loading onto carbon nanohorns

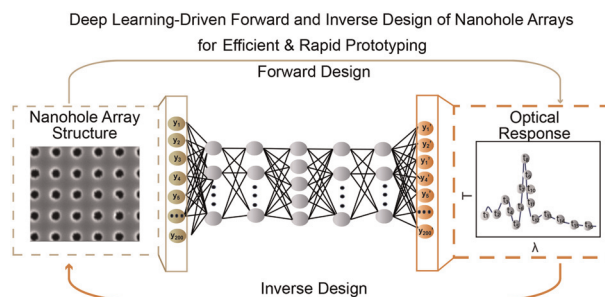
Maki Nakamura,* Yumiko Yamamoto, Minfang Zhang, Katsuya Ueda, Kaoru Aoki, Naoto Saito and Masako Yudasaka*



16641

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

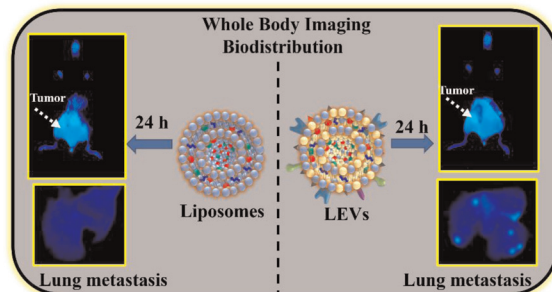
Tasnia Jahan, Tomoshree Dash, Shifat E. Arman, Reefat Inum, Sharnali Islam, Lafifa Jamal, Ahmet Ali Yanik and Ahsan Habib*



16652

Maximizing liposome tumor delivery by hybridizing with tumor-derived extracellular vesicles

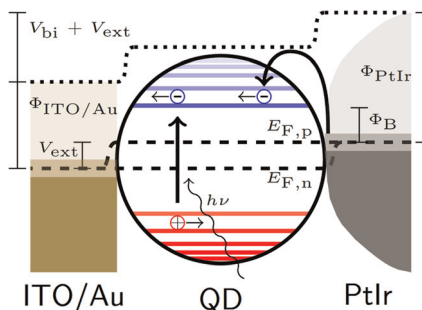
Shoukath Sulthana, Dinesh Shrestha and Santosh Aryal*



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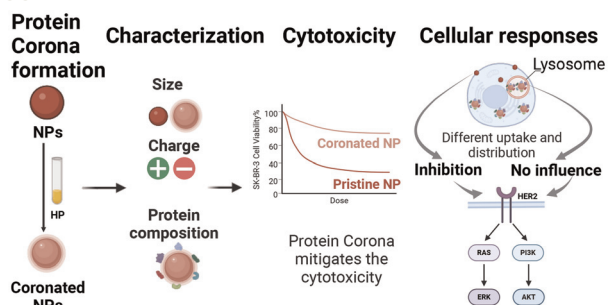
Quantitative photocurrent scanning probe microscopy on PbS quantum dot monolayers

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



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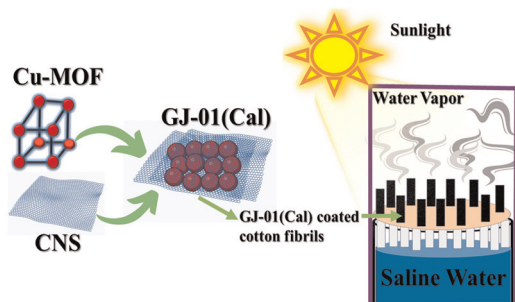
16671



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

Siyao Xiao, Junbiao Wang, Luca Digiaco, Augusto Amici, Valentina De Lorenzi, Licia Anna Pugliese, Francesco Cardarelli, Andrea Cerrato, Aldo Laganà, Lishan Cui, Massimiliano Papi, Giulio Caracciolo, Cristina Marchini* and Daniela Pozzi*

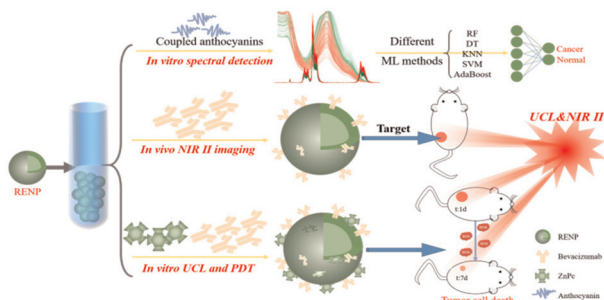
16684



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*

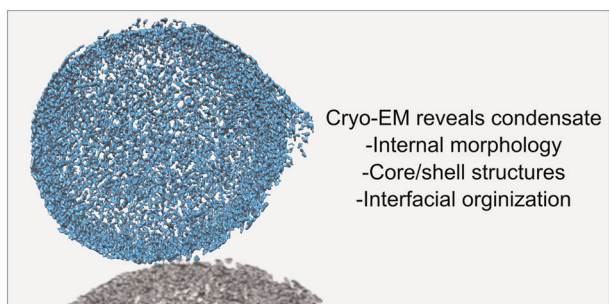
16697



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

Hanyu Liu, Ziyue Ju, Xin Hui, Wenjing Li and Ruichan Lv*

16706



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

Aoon Rizvi, Bruna Favetta, Nora Jaber, Yun-Kyung Lee, Jennifer Jiang, Nehal S. Idris, Benjamin S. Schuster, Wei Dai and Joseph P. Patterson*



16718

Field enhancement induced by surface defects in two-dimensional ReSe₂ field emitters

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

