

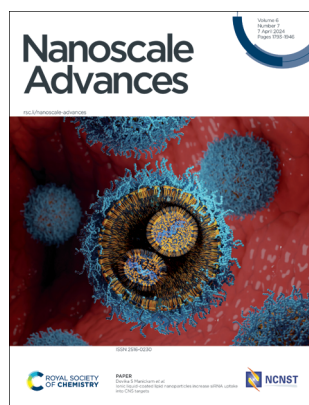
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See Devika S Manickam *et al.*, pp. 1853–1873. Image reproduced by permission of Devika S Manickam from *Nanoscale Adv.*, 2024, **6**, 1853.



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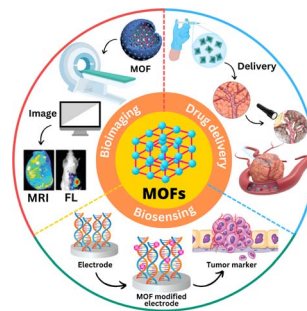
See Yusaku Abe, Yu Matsuda *et al.*, pp. 1874–1879. Image reproduced by permission of Yusaku Abe from *Nanoscale Adv.*, 2024, **6**, 1874.

REVIEW

1800

Recent progress and challenges of MOF-based nanocomposites in bioimaging, biosensing and biocarriers for drug delivery

Ngoan Thi Thao Nguyen, Thuy Thi Thanh Nguyen, Shengbo Ge, Rock Keey Liew, Duyen Thi Cam Nguyen* and Thuan Van Tran*



MINIREVIEW

1822

Detailed discussion on the structure of alloy nanoparticles synthesized via magnetron sputter deposition onto liquid poly(ethylene glycol)

Mai Thanh Nguyen,* Pichaya Pattanasattayavong and Tetsu Yonezawa*



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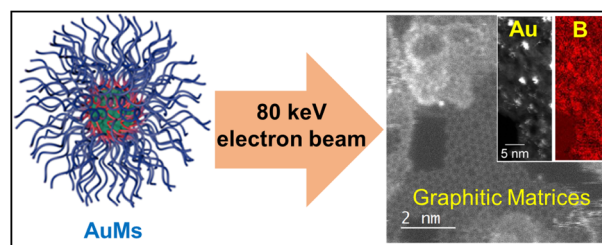
**Fundamental questions
Elemental answers**

COMMUNICATIONS

1837

Experimental and theoretical evidence for unprecedented strong interactions of gold atoms with boron on boron/sulfur-doped carbon surfaces

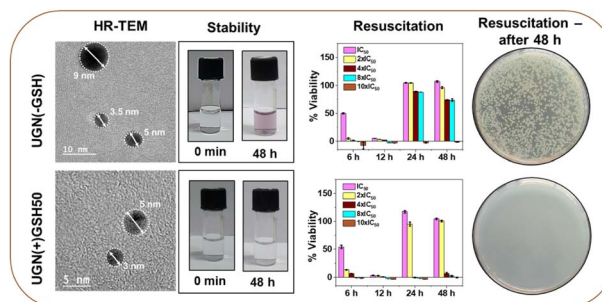
Samya Banerjee,* Juliusz A. Wolny,* Mohsen Danaie,* Nicolas P. E. Barry, Yisong Han, Houari Amari, Richard Beanland, Volker Schünemann and Peter J. Sadler*



1847

Overcoming microbial resuscitation using stable ultrafine gold nanosystems

Anindita Thakur, Pranay Amruth Maroju, Ramakrishnan Ganesan* and Jayati Ray Dutta*

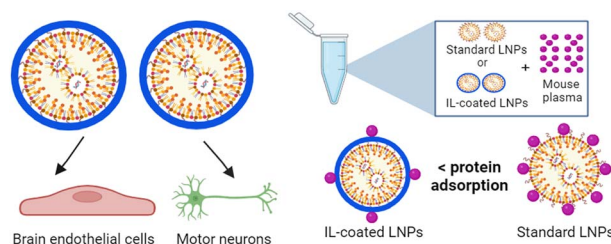


PAPERS

1853

Ionic liquid-coated lipid nanoparticles increase siRNA uptake into CNS targets

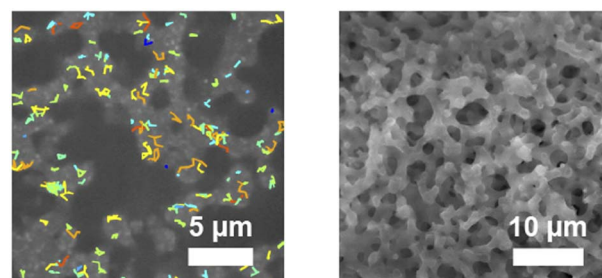
Purva Khare, Sara X. Edgecomb, Christine M. Hamadani, James F. Conway, Eden E. L. Tanner and Devika S Manickam*



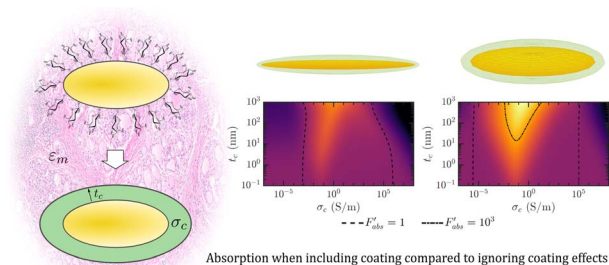
1874

Nano-particle motion in a monolithic silica column using the single-particle tracking method

Yusaku Abe,* Naoki Tomioka and Yu Matsuda*



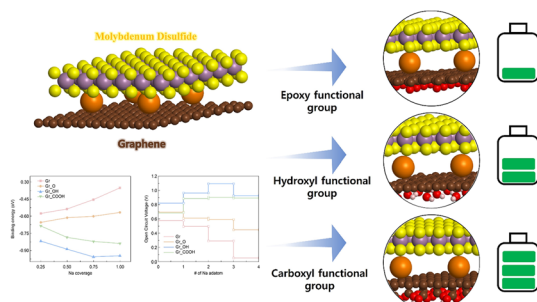
1880



Radiofrequency absorption of coated ellipsoidal gold nanoparticles in human tissue

Brage Bøe Svendsen,^{*} Olle Hennert, Robert Themptander and Mariana Dalarsson

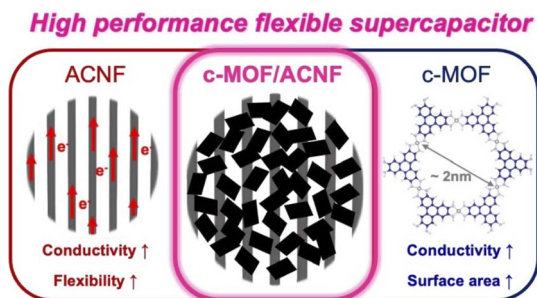
1892



First-principles evaluation of transition metal dichalcogenide-graphene pairs functionalized with oxygen-containing groups for sodium-ion battery anodes

Wonmyung Choi, Sung Jun Hong, Hoejeong Jeong and Byungchan Han^{*}

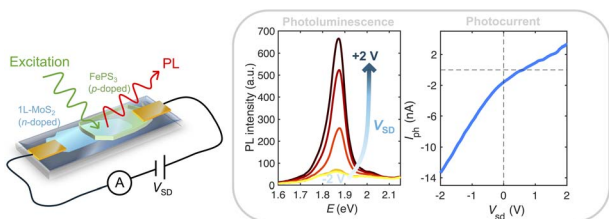
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Rational design of conductive metal-organic frameworks and aligned carbon nanofibers for enhancing the performance of flexible supercapacitors

Dongyeon Kim, Tae Gwang Yun, Ji Hyun Lee, Ki Ro Yoon^{*} and Kyunghoon Kim^{*}

1909



Tunable, multifunctional opto-electrical response in multilayer FePS₃/single-layer MoS₂ van der Waals p-n heterojunctions

Maria Ramos, Marcos Gadea, Samuel Mañas-Valero, Carla Boix-Constant, Eudomar Henríquez-Guerra, María A. Díaz-García, Eugenio Coronado and M. Reyes Calvo^{*}



Controlling supramolecular copolymerization of alkynylplatinum(II) terpyridine complexes: from isodesmic to cooperative mechanisms

An ultrasensitive label-free RNase H assay based on *in vitro* transcription of fluorogenic light-up aptamer

8:2 (Pt-Sat-C18:Pt-DA-C25) 4:6 (Pt-Sat-C18:Pt-DA-C25)

The diagram illustrates the transition from an isodesmic to a cooperative binding state. On the left, the 8:2 complex (Pt-Sat-C18:Pt-DA-C25) is shown with a 'Left-Handed Helix' and a binding site with a 30° angle. Below it is a plot of θ vs. Temperature showing an isodesmic binding curve. An arrow labeled 'Pt-DA-C25' points to the right, where the 4:6 complex (Pt-Sat-C18:Pt-DA-C25) is shown. The binding site angle is now 15°, and the plot shows a cooperative binding curve.

The diagram illustrates the *in vitro* transcription mechanism for fluorogenic light-up aptamers. It shows a hairpin substrate probe that can be cleaved by RNase H. When RNase H is present, the probe is cleaved, allowing T7 RNA polymerase to transcribe the template probe, resulting in a high signal. When RNase H is absent, the probe remains intact, blocking transcription and resulting in a low signal.

A new neodymium complex on renewable magnetic biochar nanoparticles as an environmentally friendly, recyclable and efficient nanocatalyst in the homoselective synthesis of tetrazoles