

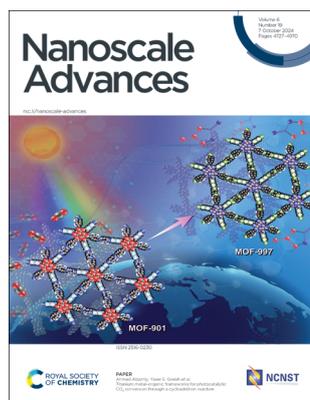
Nanoscale Advances

An open access journal publishing across the breadth of nanoscience and nanotechnology
rsc.li/nanoscale-advances

The Royal Society of Chemistry is the world's leading chemistry community. Through our high impact journals and publications we connect the world with the chemical sciences and invest the profits back into the chemistry community.

IN THIS ISSUE

ISSN 2516-0230 CODEN NAADAI 6(19) 4727–4970 (2024)



Cover

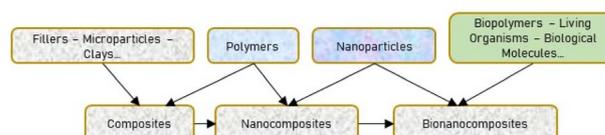
See Ahmed Alzamly, Yaser E. Greish *et al.*, pp. 4804–4813. Image reproduced by permission of James Kegere, Shaikha S. Alneyadi, Alejandro Perez Paz, Lamia A. Siddig, Afra Alblooshi, Mohamed A. Alnaqbi, Ahmed Alzamly and Yaser E. Greish from *Nanoscale Adv.*, 2024, **6**, 4804.

REVIEWS

4736

Bionanocomposite materials for electroanalytical applications: current status and future challenges

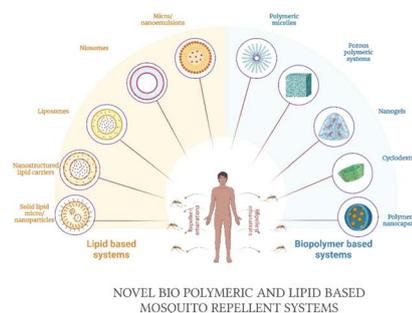
Gullit Deffo,* Ranil Clément Tonleu Temgoua, Evangéline Njanja and Panchanan Puzari



4751

Biopolymeric and lipid-based nanotechnological strategies for the design and development of novel mosquito repellent systems: recent advances

Chinekwa Nwagwu,* Adaeze Onugwu, Adaeze Echezona, Samuel Uzundu, Chinazom Agbo, Frankline Kenekchukwu, John Ogbonna, Lydia Ugorji, Lotanna Nwobi, Obichukwu Nwobi, Oluchi Mmuotoo, Ezinwanne Ezeibe, Brigitta Loretz, Clemence Tarirai, Kingsley Chimaee Mbara, Nnabuiife Agumah, Petra Nnamani, Kenneth Ofokansi, Claus-Micheal Lehr and Anthony Attama*



ChemComm

Uncover new possibilities
with outstanding
preliminary research

Original discoveries, fuelling
every step of scientific progress

rsc.li/chemcomm

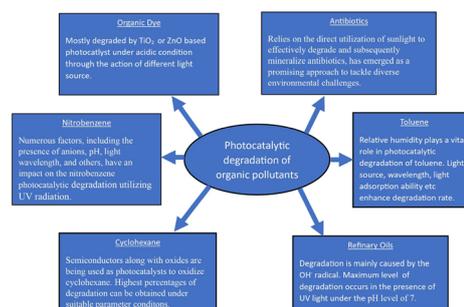
Fundamental questions
Elemental answers

REVIEWS

4781

Metal oxide-based photocatalysts for the efficient degradation of organic pollutants for a sustainable environment: a review

Abdullah Al Miad, Shassatha Paul Saikat, Md. Kawcher Alam, Md. Sahadat Hossain, Newaz Mohammed Bahadur and Samina Ahmed*

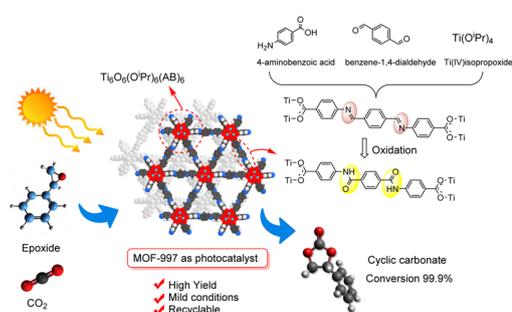


PAPERS

4804

Titanium metal–organic frameworks for photocatalytic CO_2 conversion through a cycloaddition reaction

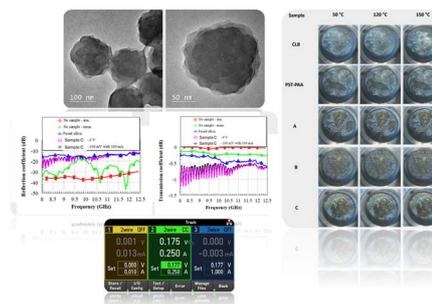
James Kegere, Shaikha S. Alneyadi, Alejandro Perez Paz, Lamia A. Siddig, Afra Alblooshi, Mohamed A. Alnaqbi, Ahmed Alzamy* and Yaser E. Greish*



4814

Different morphologies of super-balls obtained to form photonic crystals of cholesteryl benzoate liquid crystals

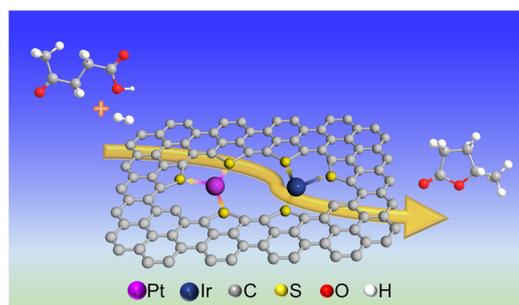
Edina Rusen,* Alexandra Mocanu, Adrian Dinescu, Adina Boldeiu, Cosmin Romanitan, Sergiu Iordanescu, Martino Aldrigo, Raluca Somoghi, Raul Mitran and Adi Ghebaur



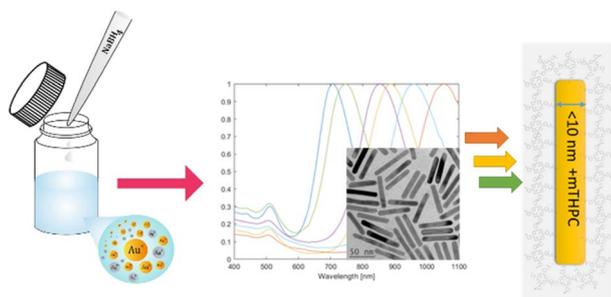
4825

Atomically dispersed Pt_1Ir_1 pair for synergetic hydrogenation of levulinic acid to γ -valerolactone

Boyang Liu, Lin-Wei Chen and Lei Wang*



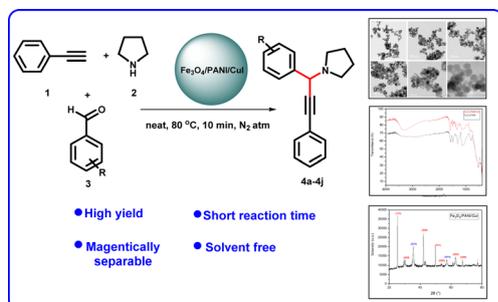
4831



High yield seedless synthesis of mini gold nanorods: partial silver decoupling allows effective nanorod elongation with tunable surface plasmon resonance beyond 1000 nm and CTAB-free functional coating for mTHPC conjugation

Mike Rozenberg, Matěj Bárta, Anya Muzikansky, Melina Zysler, Karolína Šišková, Yitzhak Mastai and David Zitoun*

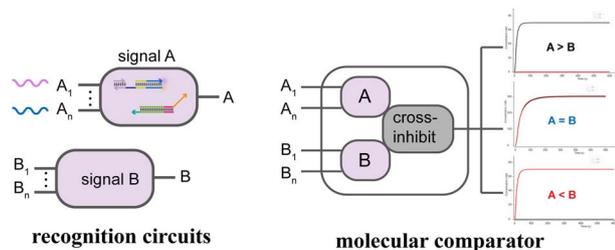
4842



Fe₃O₄/PANI/CuI as a sustainable heterogeneous nanocatalyst for A³ coupling

Nisha, Sahil Kohli, Snigdha Singh, Neera Sharma* and Ramesh Chandra*

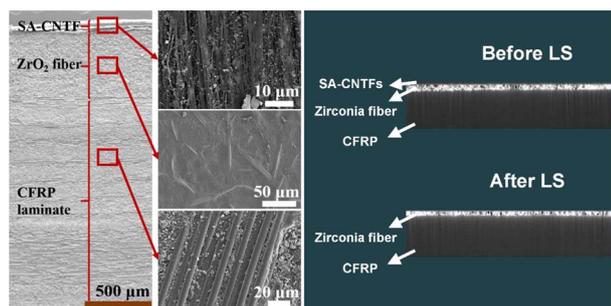
4852



Scalable DNA recognition circuits based on DNA strand displacement

Fang Wang, Beiyu Shi, Ying Chen, Xiaolong Shi, Zheng Kou* and Xiaoli Qiang*

4858



Advanced lightweight lightning strike protection composites based on super-aligned carbon nanotube films and thermal-resistant zirconia fibers

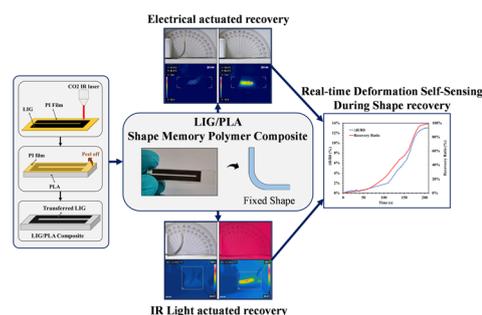
Mingquan Zhu, Peng Zhang, Feng Gao, Yunxiang Bai,* Hui Zhang,* Min Zu, Luqi Liu and Zhong Zhang*



4865

Development of a laser induced graphene (LIG) and polylactic acid (PLA) shape memory polymer composite with simultaneous multi-stimuli response and deformation self-sensing characteristics

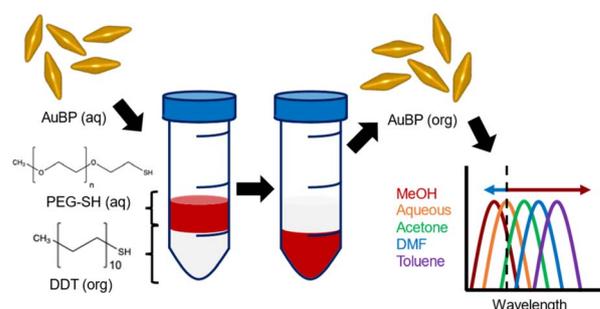
Reza Gholami, Ibrahim Lawan, Panuwat Luengrojanakul, Sahar Ebrahimi, Cheol-Hee Ahn and Sarawut Rimdusit*



4877

Scalable and adaptable two-ligand co-solvent transfer methodology for gold bipyramids to organic solvents

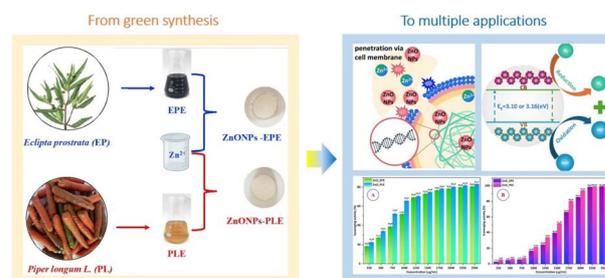
Caitlin D. Coplan, Nicolas E. Watkins, Xiao-Min Lin and Richard D. Schaller*



4885

Biosynthesis of ZnO nanoparticles using aqueous extracts of *Eclipta prostrata* and *Piper longum*: characterization and assessment of their antioxidant, antibacterial, and photocatalytic properties

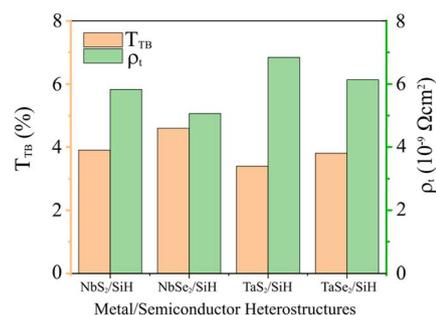
Xuan Thanh Tran, Thanh Thi Lan Bien, Thuan Van Tran* and Thuy Thi Thanh Nguyen*



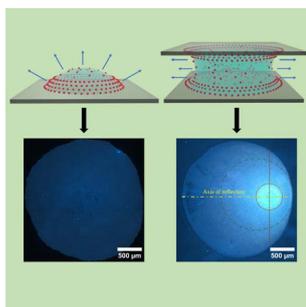
4900

Achieving ultra-low contact barriers in MX_2/SiH ($\text{M} = \text{Nb, Ta}$; $\text{X} = \text{S, Se}$) metal–semiconductor heterostructures: first-principles prediction

Son T. Nguyen, Chuong V. Nguyen,* Huynh V. Phuc, Nguyen N. Hieu and Cuong Q. Nguyen*



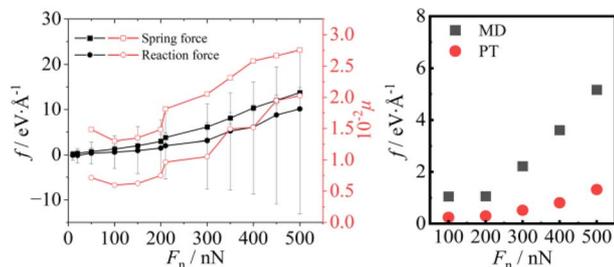
4907



Soft colloidal monolayers with reflection symmetry through confined drying

Sanjib Majumder, Madivala G. Basavaraj* and Dillip K. Satapathy*

4922

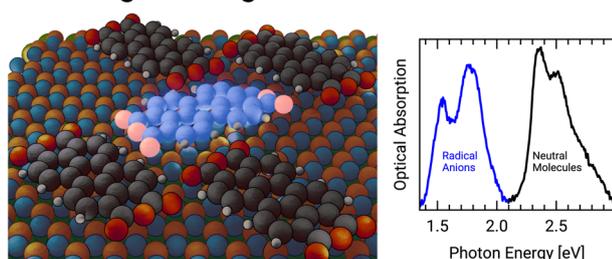


Substrate deformability and applied normal force are coupled to change nanoscale friction

Zhaoyang Yu, Mengyuan Huang* and Xianren Zhang*

4932

Integer Charge Transfer on 2D h-BN



Triggered integer charge transfer: energy-level alignment at an organic-2D material interface

Maximilian Schaal, Anu Baby, Marco Gruenewald, Felix Otto, Roman Forker, Guido Fratesi and Torsten Fritz*

4944



Experimental investigation of a biomass-derived nanofluid with enhanced thermal conductivity as a green, sustainable heat-transfer medium and qualitative comparison via mathematical modelling

Kiran Bijapur, Samir Mandal, P. G. Siddheshwar, Suryasarathi Bose and Gurumurthy Hegde*



4956

Effect of precipitant on pro-oxidative and antibacterial properties of CeO₂ nanoparticles – an experimental study

Shilpa Maddheshiya, Priyanka Rajwani and Seema Nara*

