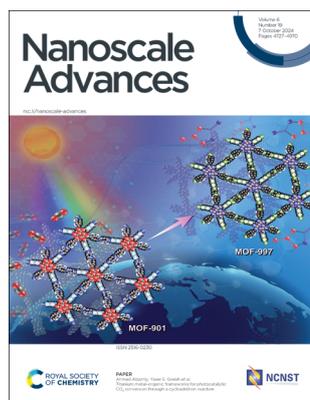# Nanoscale Advances

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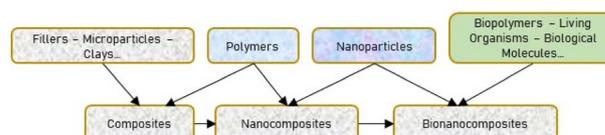
IN THIS ISSUE

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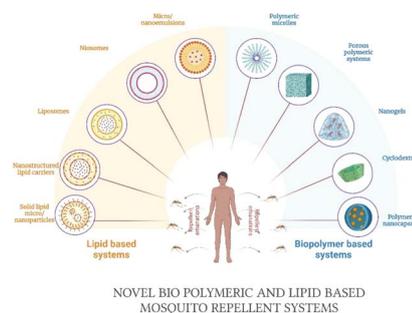
Gullit Deffo,* Ranil Clément Tonleu Temgoua, Evangéline Njanja and Panchanan Puzari

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

Chinekwu Nwagwu,* Adaeze Onugwu, Adaeze Echezona, Samuel Uzondu, Chinazom Agbo, Frankline Kenechukwu, John Ogbonna, Lydia Ugorji, Lotanna Nwobi, Obichukwu Nwobi, Oluchi Mmuotoo, Ezinwanne Ezeibe, Brigitta Loretz, Clemence Tarirai, Kingsley Chimaeze Mbara, Nnabuife Agumah, Petra Nnamani, Kenneth Ofokansi, Claus-Micheal Lehr and Anthony Attama*

NOVEL BIO POLYMERIC AND LIPID BASED MOSQUITO REPELLENT SYSTEMS

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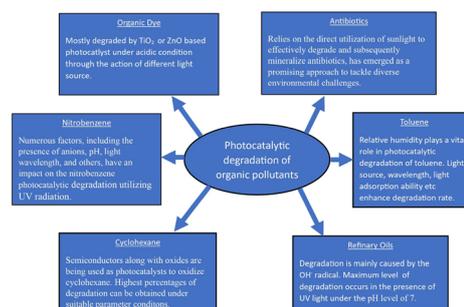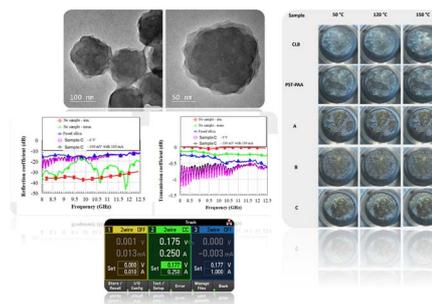Original discoveries, fuelling every step of scientific progress

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**Fundamental questions
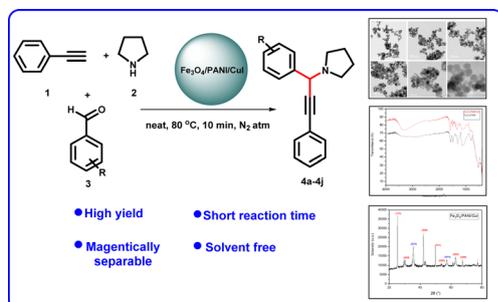Elemental answers**

REVIEWS

PAPERS

PAPERS

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 *m*THPC conjugation

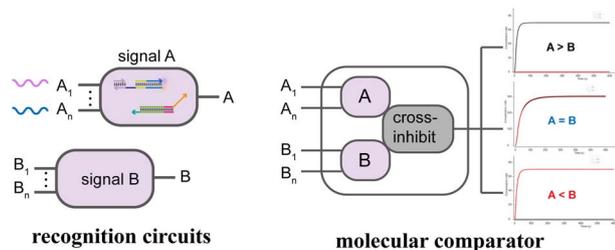Mike Rozenberg, Matěj Bárta, Anya Muzikansky, Melina Zysler, Karolína Šišková, Yitzhak Mastai and David Zitoun*

4842

Fe$_3$O$_4$/PANI/CuI as a sustainable heterogeneous nanocatalyst for A^3 coupling

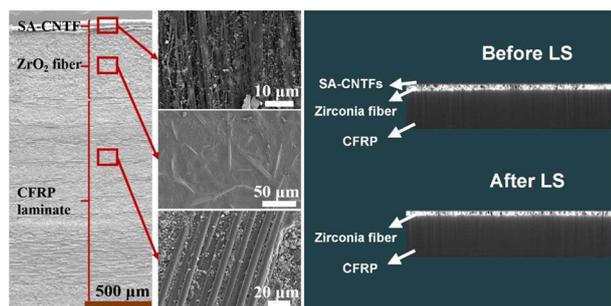Nisha, Sahil Kohli, Snigdha Singh, Neera Sharma* and Ramesh Chandra*

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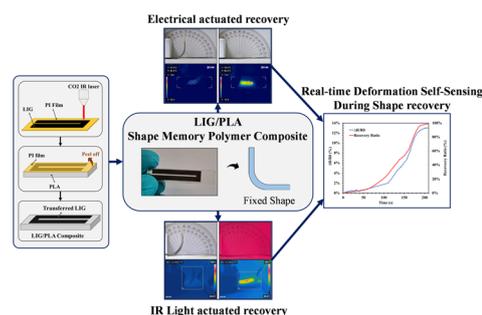
Mingquan Zhu, Peng Zhang, Feng Gao, Yunxiang Bai,* Hui Zhang,* Min Zu, Luqi Liu and Zhong Zhang*

PAPERS

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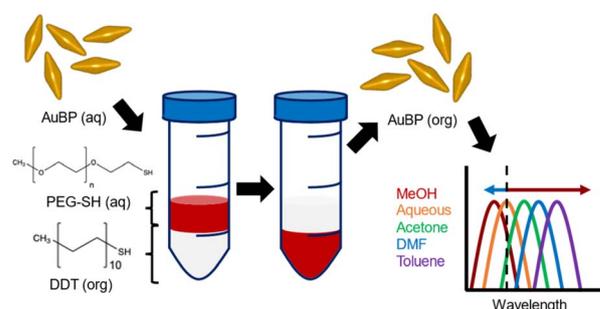
Reza Gholami, Ibrahim Lawan, Panuwat Luengrojanakul, Sahar Ebrahimi, Cheol-Hee Ahn and Sarawut Rimdusit*

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Scalable and adaptable two-ligand co-solvent transfer methodology for gold bipyramids to organic solvents
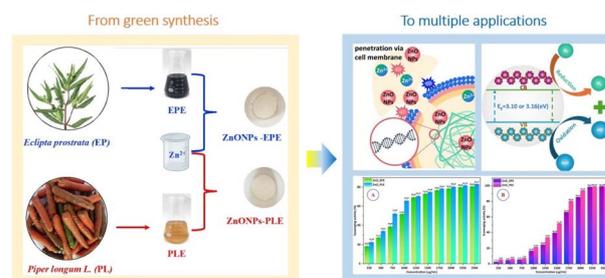
Caitlin D. Coplan, Nicolas E. Watkins, Xiao-Min Lin and Richard D. Schaller*

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Biosynthesis of ZnO nanoparticles using aqueous extracts of *Eclipta prostrata* and *Piper longum*: characterization and assessment of their antioxidant, antibacterial, and photocatalytic properties
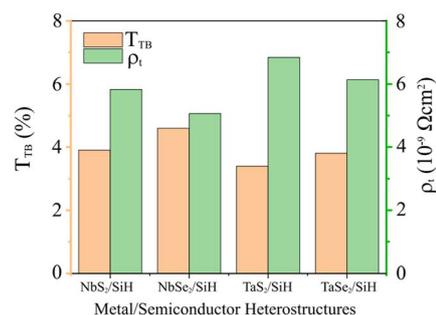
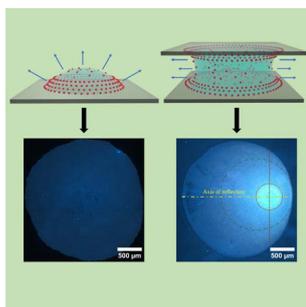Xuan Thanh Tran, Thanh Thi Lan Bien, Thuan Van Tran* and Thuy Thi Thanh Nguyen*

4900

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

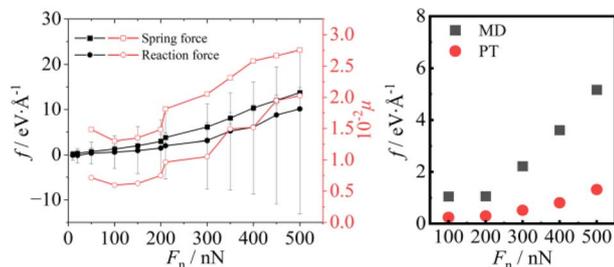Son T. Nguyen, Chuong V. Nguyen,* Huynh V. Phuc, Nguyen N. Hieu and Cuong Q. Nguyen*

PAPERS

PAPERS

Effect of precipitant on pro-oxidative and antibacterial properties of CeO$_2$ nanoparticles – an experimental study

Shilpa Maddheshiya, Priyanka Rajwani and Seema Nara*