

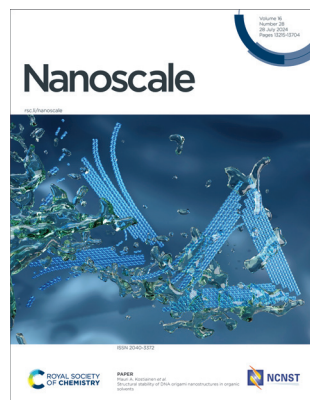
Nanoscale

rsc.li/nanoscale

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 2040-3372 CODEN NANOHL 16(28) 13215–13704 (2024)



Cover

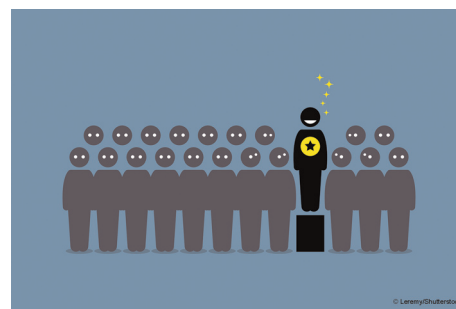
See Mauri A. Kostianen *et al.*, pp. 13407–13415.

Image reproduced by permission of Mauri A. Kostianen from *Nanoscale*, 2024, **16**, 13407.

EDITORIAL

13228

Outstanding Reviewers for *Nanoscale* in 2023



REVIEWS

13230

Bio-gel nanoarchitectonics in tissue engineering

Jingwen Song,* Wenyan Lyu, Kohsaku Kawakami and Katsuhiko Ariga*



Advance your career in science

with professional recognition that showcases
your **experience, expertise and dedication**

Stand out from the crowd

Prove your commitment
to attaining excellence in
your field

Gain the recognition you deserve

Achieve a professional
qualification that inspires
confidence and trust

Unlock your career potential

Apply for our professional
registers (RSci, RSciTech)
or chartered status
(CChem, CSci, CEnv)

Apply now

[rsc.li/professional-development](https://www.rsc.li/professional-development)

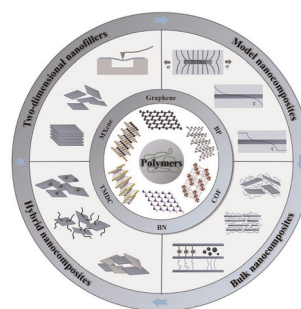


REVIEWS

13247

Mechanical reinforcement from two-dimensional nanofillers: model, bulk and hybrid polymer nanocomposites

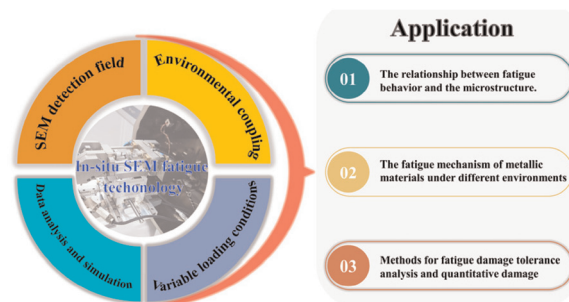
Ming Dong, Yiwei Sun, David J. Dunstan, Robert J. Young* and Dimitrios G. Papageorgiou*



13300

In situ SEM fatigue testing technology for metallic materials: a review

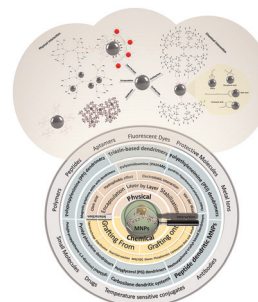
Bin Zhang, Longyu Li, Xuecheng Zhang, Xiangcheng Sun, Xinbao Zhao,* Yuefei Zhang* and Ze Zhang



13331

Advances in functionalization and conjugation mechanisms of dendrimers with iron oxide nanoparticles

Salma Habib, Mohammed Talhami, Amani Hassanein, Elsadig Mahdi, Maryam AL-Ejji, Mohammad K. Hassan, Ali Altaee, Probir Das and Alaa H. Hawari*

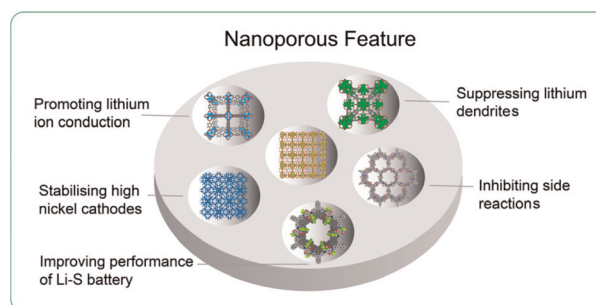


MINIREVIEWS

13373

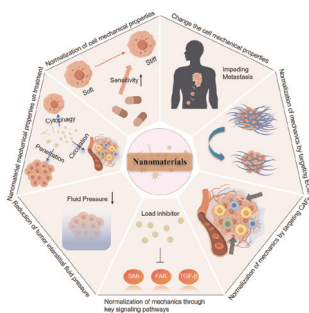
Advances in nanoporous materials for next-generation battery applications

Li Sheng, Xiangming He and Hong Xu*



MINIREVIEWS

13386



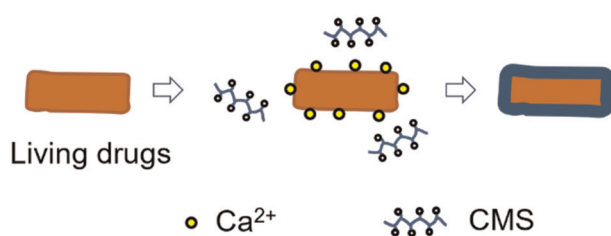
The application of nanomaterials in tumor therapy based on the regulation of mechanical properties

Xiaolei Wang, Hongxi Yu, Dan Liu, Boxian Hu, Ruihang Zhang, Lihua Hu, Guiping Hu* and Cheng Li*

COMMUNICATION

13399

Interfacial engineering

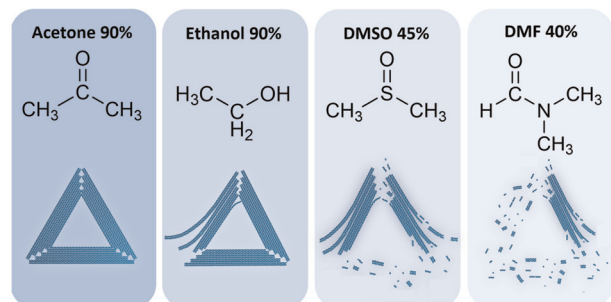


Interfacial-engineered living drugs with "ON/OFF" switching for oral delivery

Pingping Feng,* Xuefei Bai, Xiaofei Ma, Han Kong and Rui Yang*

PAPERS

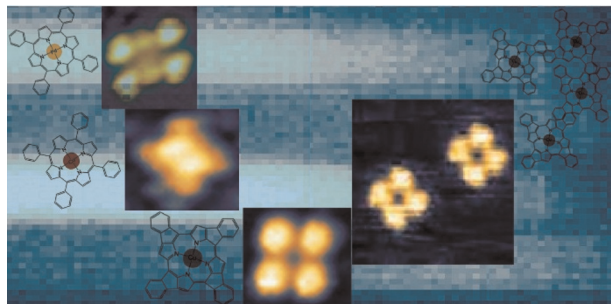
13407



Structural stability of DNA origami nanostructures in organic solvents

Eeva Enlund, Sofia Julin, Veikko Linko and Mauri A. Kostainen*

13416



Stabilization versus competing de-metalation, trans-metalation and (cyclo)-dehydrogenation of Pd porphyrins at a copper surface

Stefania Baronio, Mattia Bassotti, Francesco Armillotta, Eleanor Frampton, Nikolay A. Vinogradov, Luca Schio, Luca Floreano, Alberto Verdini* and Erik Vesselli*

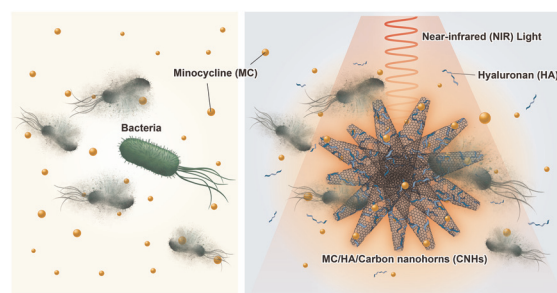


PAPERS

13425

Near-infrared light-boosted antimicrobial activity of minocycline/hyaluronan/carbon nanohorn composite toward peri-implantitis treatments

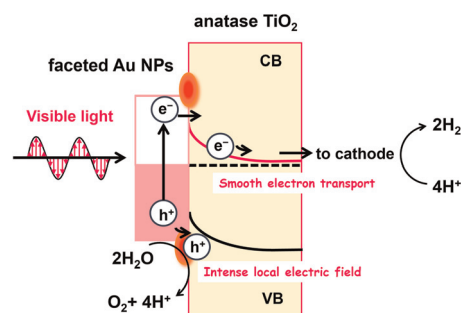
Daisuke Konishi, Eri Hirata,* Yuta Takano,* Yukari Maeda, Natsumi Ushijima, Masako Yudasaka and Atsuro Yokoyama



13435

Efficient plasmonic water splitting by heteroepitaxial junction-induced faceting of gold nanoparticles on an anatase titanium(IV) oxide nanoplate array electrode

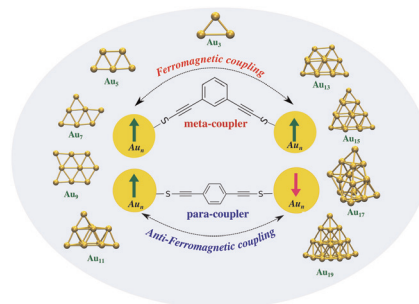
Shin-ichi Naya, Yoko Morita, Hisashi Sugime, Tetsuro Soejima, Musashi Fujishima and Hiroaki Tada*



13445

Orchestration of ferro- and anti-ferromagnetic ordering in gold nanoclusters

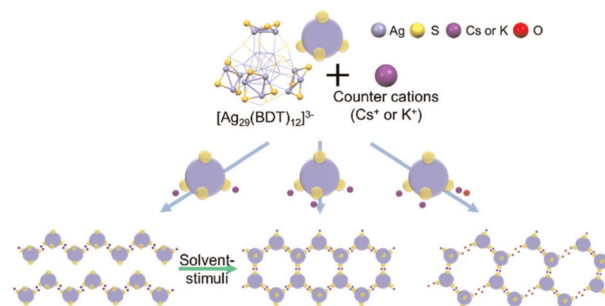
Nisha Mehla, Aritra Mukhopadhyaya, Shahjad Ali and Md. Ehesan Ali*



13457

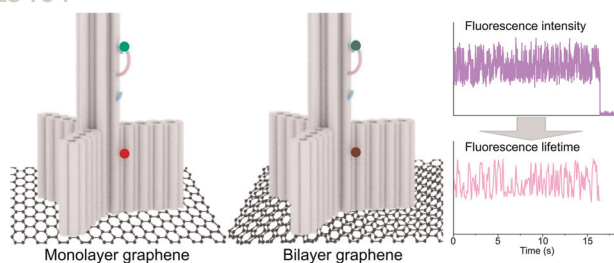
Assembly of anionic silver nanoclusters with controlled packing structures through site-specific ionic bridges

Wataru Ishii, Rika Tanaka and Takuya Nakashima*



PAPERS

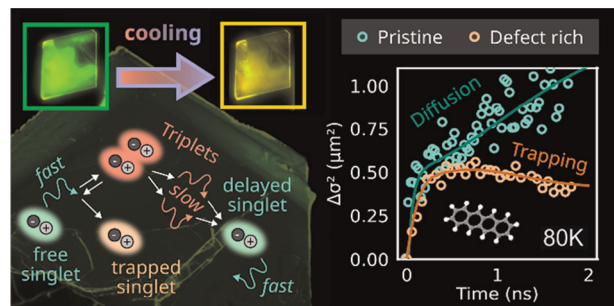
13464



Expanding the range of graphene energy transfer with multilayer graphene

Karolina Gronkiewicz, Lars Richter, Fabian Knechtel, Patryk Pyrcz, Paul Leidinger, Sebastian Günther, Evelyn Ploetz, Philip Tinnefeld* and Izabela Kamińska*

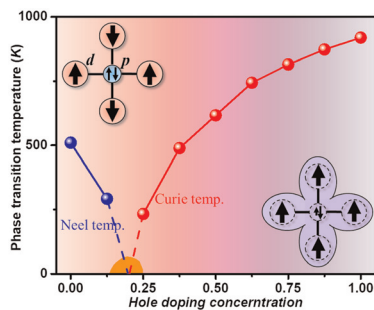
13471



Transport, trapping, triplet fusion: thermally retarded exciton migration in tetracene single crystals

Dominik Muth, Sebastian Anhäuser, Daniel Bischof, Anton Krüger, Gregor Witte* and Marina Gerhard*

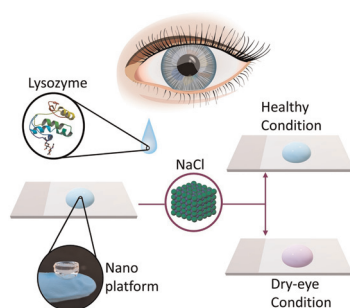
13483



Exploring unconventional ferromagnetism in hole-doped LaCrAsO: insights into charge-transfer and magnetic interactions

Zhao Liu* and Nikhil V. Medhekar*

13492



Lysozyme-sensitive plasmonic hydrogel nanocomposite for colorimetric dry-eye inflammation biosensing

Yasamin Ziai, Chiara Rinoldi, Francesca Petronella, Anna Zakrzewska, Luciano De Sio and Filippo Pierini*

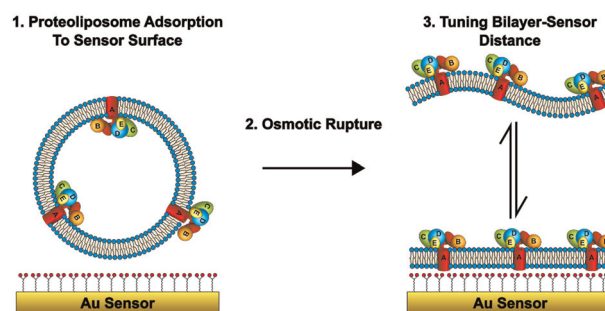


PAPERS

13503

Distance tuneable integral membrane protein containing floating bilayers *via in situ* directed self-assembly

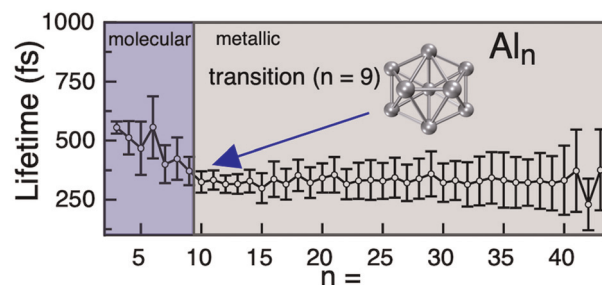
Stephen C. L. Hall, David J. Hardy, Éilís C. Bragginton, Hannah Johnston, Tudor Onose, Rachel Holyfield, Pooja Sridhar, Timothy J. Knowles and Luke A. Clifton*



13516

Size onset of metallic behavior in neutral aluminum clusters

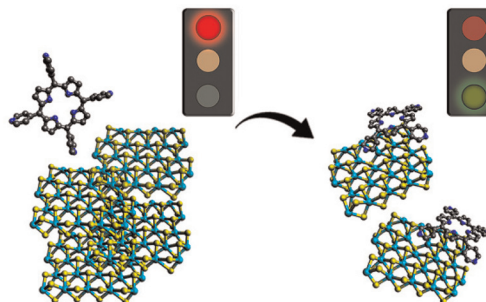
Chase H. Rotteger, Carter K. Jarman, Shaun F. Sutton and Scott G. Sayres*



13525

Simultaneous exfoliation and functionalization of MoS₂ with tetrapyrrolyl porphyrin

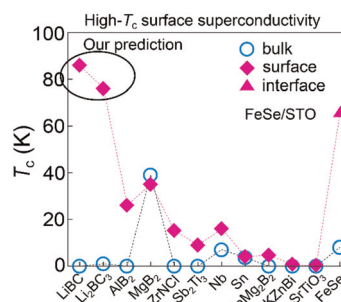
Marina Garrido,* Alejandro Criado* and Maurizio Prato*



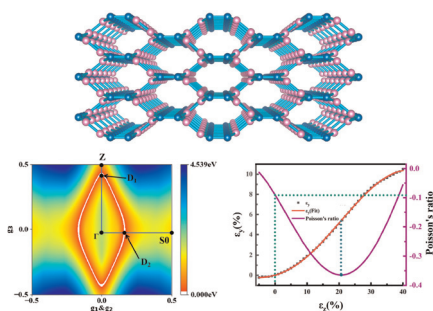
13534

Surface inducing high-temperature superconductivity in layered metal carbides Li₂BC₃ and LiBC by metallizing σ electrons

Muyao Wang, Xiaohan Liu, Xiaowei Huang* and Liangliang Liu*



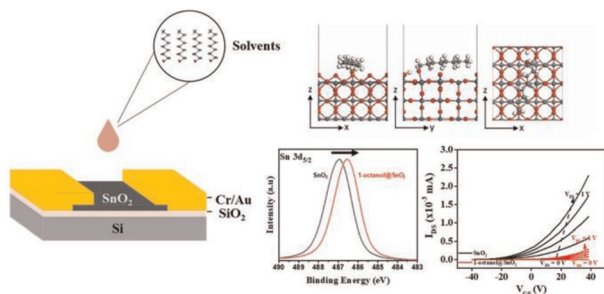
13543



A topological nodal line semi-metal with a negative Poisson's ratio in a three-dimensional carbon network with sp^2 hybridization

Wen Jiang, Jun Jiang, Zhixun Zhang, Wenjie Wu, Li-Chuan Zhang,* Yuee Xie* and Yuanping Chen*

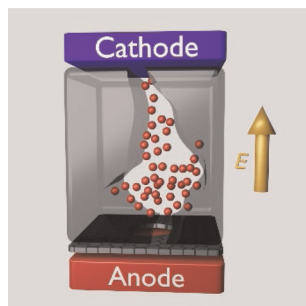
13551



Surface chemistry altering electronic behaviour of liquid metal-derived tin oxide nanosheets

Xiaotian Wei, Chung Kim Nguyen, Patrick D. Taylor, Vaishnavi Krishnamurthi, Nitu Syed, Phuong Y. Le, Michelle J. S. Spencer, Torben Daeneke* and Lei Bao*

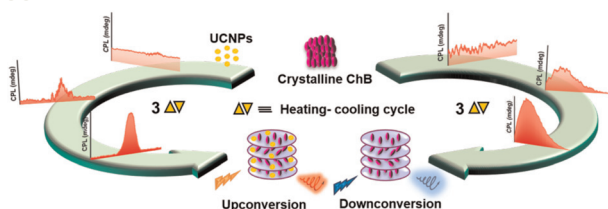
13562



Kinetic Monte Carlo simulations on electroforming in nanomanipulated conductive bridge random access memory devices

Yu-Chen Li, Ping Xu, Yang-Yang Lv, Wei Fa and Shuang Chen*

13571



Clustering triggered emissive liquid crystalline template for dual mode upconverted and downconverted circularly polarized luminescence

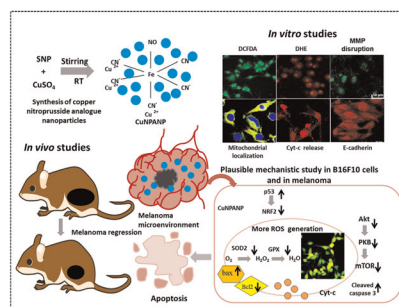
Sreelakshmi Theeyanchery Nalavadath, Sonia Maniappan, Anannya Mandal and Jatish Kumar*



13580

Copper nitroprusside analogue nanoparticles against melanoma: detailed *in vitro* and *in vivo* investigation

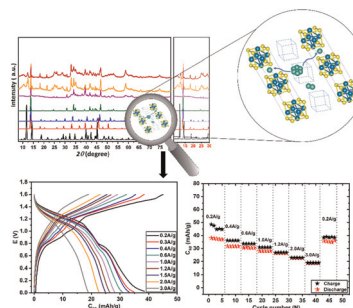
Sanchita Tripathy, Swapnali Londhe, Arti Patel, Sudipta Saha, Yogesh Chandra and Chitta Ranjan Patra*



13597

Nanosized Chevrel phases for dendrite-free zinc-ion based energy storage: unraveling the phase transformations

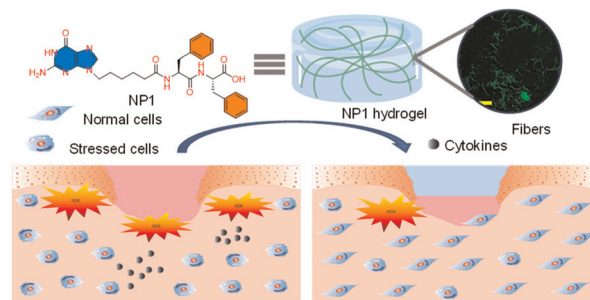
Amr Elgendy, Athanasios A. Papaderakis, Andinet Ejigu, Katharina Helmbrecht, Ben F. Spencer, Axel Groß, Alex S. Walton, David J. Lewis* and Robert A. W. Dryfe*



13613

Design and synthesis of a nucleobase functionalized peptide hydrogel: *in vitro* assessment of anti-inflammatory and wound healing effects

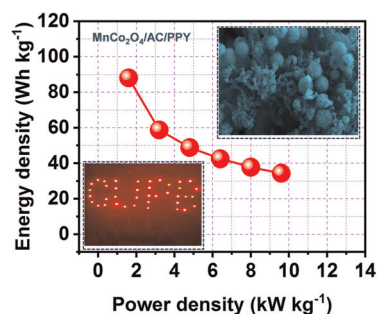
Sourav Bhowmik, Budhadev Baral, Tanmay Rit, Hem Chandra Jha and Apurba K. Das*



13627

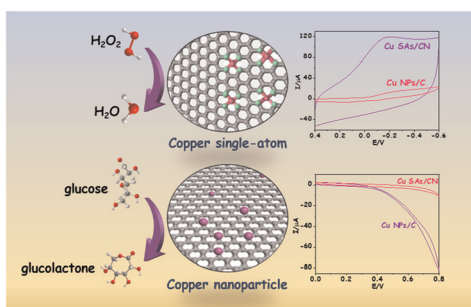
Polypyrrole and activated carbon enriched MnCo₂O₄ ternary composite as efficient electrode material for hybrid supercapacitors

Simran Kour, Pawanpreet Kour and A. L. Sharma*



PAPERS

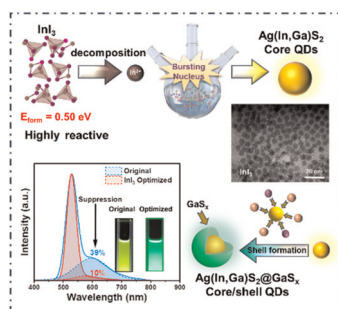
13642



Selecting effective electrocatalyst from Cu single-atoms and nanoparticles for realizing highly sensitive electrochemical sensing of glucose and H₂O₂

Ziyin Yang,* Chongchao Zhang and Chengcheng Qi*

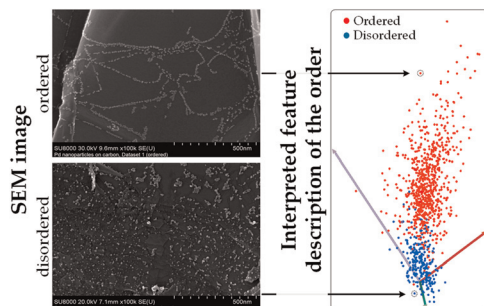
13654



Reactivity-matched synthesis of monodisperse Ag(In,Ga)S₂ QDs with efficient luminescence

Naiwei Wei, Hong Zhu, Danni Yan, Shuai Yang, Lili Xu, Shengli Zhang, Yuhui Dong,* Yousheng Zou* and Haibo Zeng*

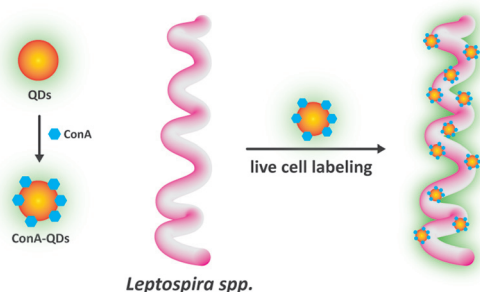
13663



Determining the orderliness of carbon materials with nanoparticle imaging and explainable machine learning

Mikhail Yu. Kurbakov, Valentina V. Sulimova, Andrei V. Kopylov, Oleg S. Seredin, Daniil A. Boiko, Alexey S. Galushko, Vera A. Cherepanova and Valentine P. Ananikov*

13677



Quantum dots as a fluorescent labeling tool for live-cell imaging of *Leptospira*

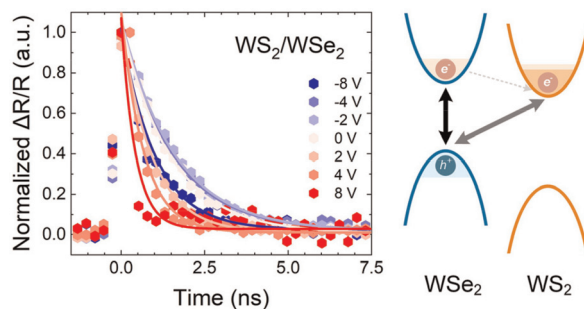
Yotsakorn Tantiapibalkun, Sopon Nuchpun, Wid Mekseriwattana, Sukhonta Limsampan, Galayanee DOUNGCHAWEE, Kulachart Jangpatarapongsa, Toemsak Sriksirin and Kanlaya Prapainop Katewongsa*



13687

Electrically tunable non-radiative lifetime in WS_2/WSe_2 heterostructures

Anran Wang, Xingguang Wu, Siwen Zhao, Zheng Vitto Han, Yi Shi, Giulio Cerullo and Fengqiu Wang*



13694

Dual-site OER mechanism exploration through regulating asymmetric multi-site NiOOH

Fei Wu, Biao Wu, Liang Chen, Yunan Wang,* Jiejie Li* and Qiuju Zhang*

