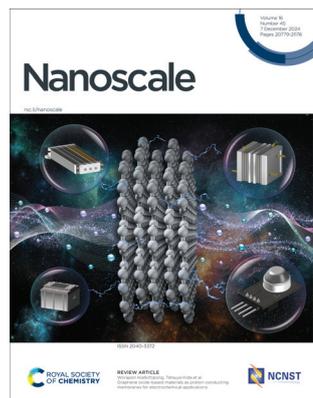


IN THIS ISSUE

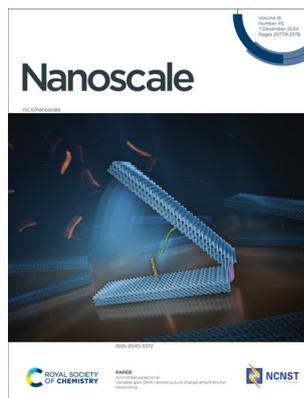
ISSN 2040-3372 CODEN NANOHL 16(45) 20779–21176 (2024)



Cover

See Worapon Kiatkittipong, Tetsuya Kida *et al.*, pp. 20791–20810.

Image reproduced by permission of Itthipon Moonnee from *Nanoscale*, 2024, **16**, 20791.



Inside cover

See Arvind Balijepalli *et al.*, pp. 20893–20902.

Image reproduced by permission of National Institute of Standards and Technology from *Nanoscale*, 2024, **16**, 20893.

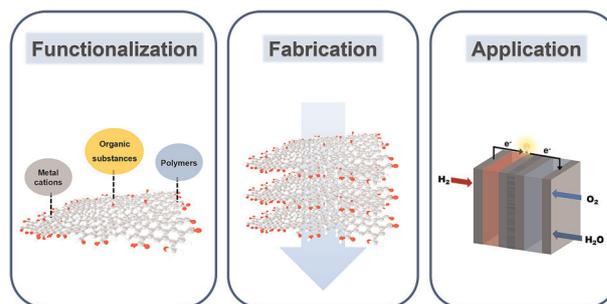
Image created by Sean Kelly.

REVIEWS

20791

Graphene oxide-based materials as proton-conducting membranes for electrochemical applications

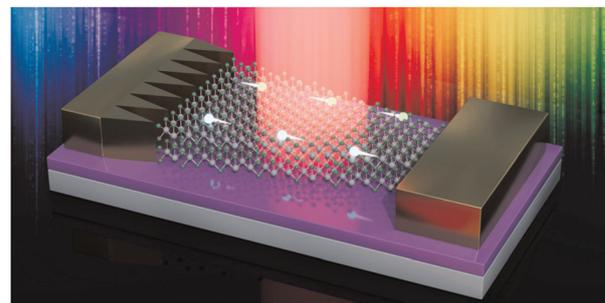
Itthipon Moonnee, Muhammad Sohail Ahmad, Yusuke Inomata, Worapon Kiatkittipong* and Tetsuya Kida*



20811

New paradigms of 2D layered material self-driven photodetectors

Xinyi Guan, Yu Chen, Yuhang Ma, Huanrong Liang, Zhaoqiang Zheng, Churong Ma, Chun Du, Jiandong Yao* and Guowei Yang



Industrial Chemistry & Materials

GOLD
OPEN
ACCESS

Focus on industrial chemistry
Advance material innovations
Highlight interdisciplinary feature

Innovative.
Interdisciplinary.
Problem solving

APCs currently waived

Learn more about ICM
Submit your high-quality article

 [@IndChemMater](#)

 [@IndChemMater](#)

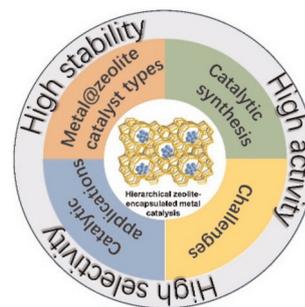
rsc.li/icm

REVIEWS

20842

Hierarchical zeolite-encapsulated metal nanoparticles for heterogeneous catalysis

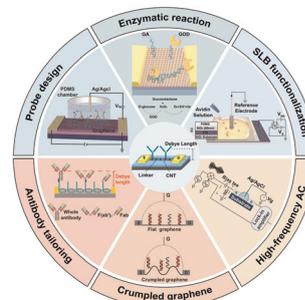
Xingxu Liu, Shufang Zhao, Wenjie Yang and Jun Huang*



20864

Overcoming Debye screening effect in field-effect transistors for enhanced biomarker detection sensitivity

Qi Meng, Huimin Li, Weilong Zhao, Ming Song, Wenhong Zhang, Xinyu Li, Jun Chen* and Li Wang*

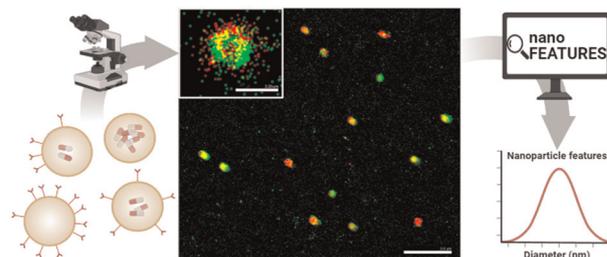


COMMUNICATION

20885

nanoFeatures: a cross-platform application to characterize nanoparticles from super-resolution microscopy images

Cristina Izquierdo-Lozano, Niels van Noort, Stijn van Veen, Marrit M. E. Tholen, Francesca Grisoni* and Lorenzo Albertazzi*

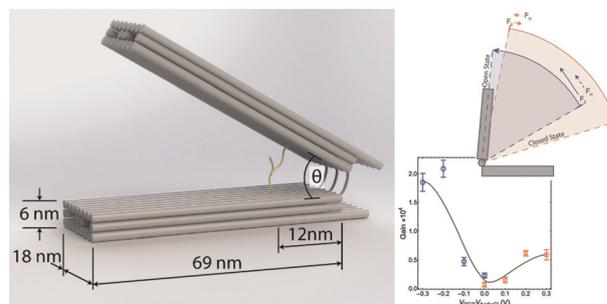


PAPERS

20893

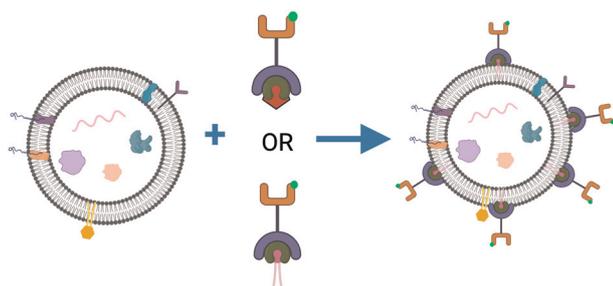
Variable gain DNA nanostructure charge amplifiers for biosensing

Jacob M. Majikes, Seulki Cho, Thomas E. Cleveland, IV, J. Alexander Liddle and Arvind Balijepalli*



PAPERS

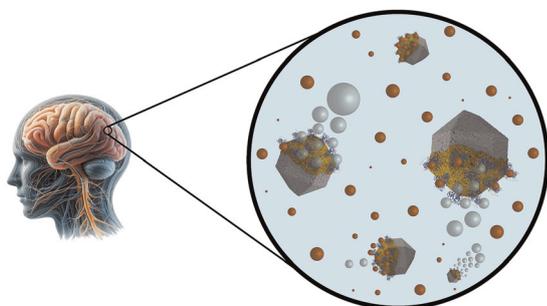
20903



Assessing the conjugation efficiency of surface-modified extracellular vesicles using single nanovesicle analysis technologies

Leora Goldbloom-Helzner, Harjn Bains, Emma G. Loll, Tanner Henson, Rachel R. Mizenko, Priyadarsini Kumar, Cheemeng Tan, Diana L. Farmer, Randy P. Carney and Aijun Wang*

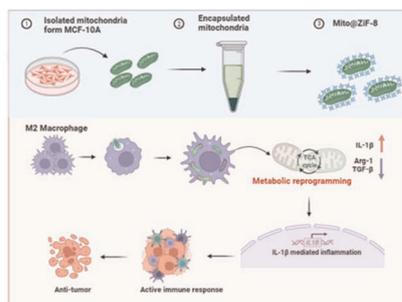
20917



Biocatalytic ZIF-8 surface-functionalized micromotors navigating in the cerebrospinal fluid: toward Alzheimer management

J. Bujalance-Fernández, E. Carro, B. Jurado-Sánchez* and A. Escarpa*

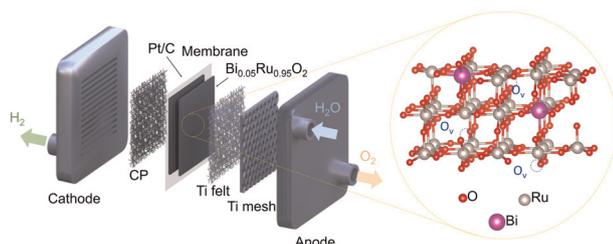
20925



Encapsulated mitochondria to reprogram the metabolism of M2-type macrophages for anti-tumor therapy

Yonghui Wang, Chang Liu, Xiaodong Ma, Anne Filppula, Youbin Cui, Jiangbin Ye* and Hongbo Zhang*

20940



Bi-doped ruthenium oxide nanocrystal for water oxidation in acidic media

Shiyao Chen, Hai Liu, Bichen Yuan, Wenhai Xu, Aiqing Cao, Marshet Getaye Sendeku, Yaping Li,* Xiaoming Sun* and Fengmei Wang*

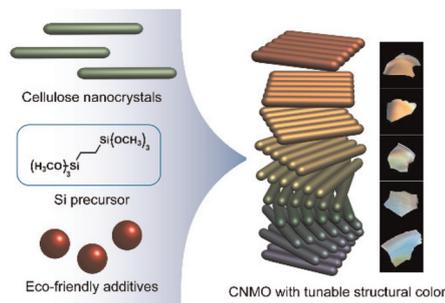


PAPERS

20948

Controlling the optical properties of chiral nematic mesoporous organosilica films with bioadditives

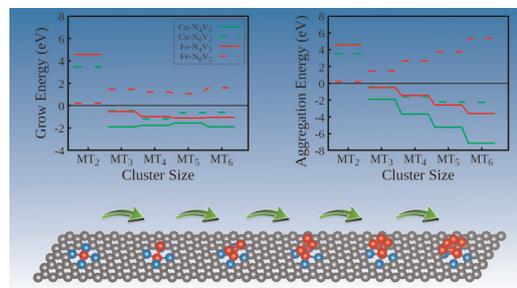
Joanna K. Szymkowiak, Lucas J. Andrew, Wadood Y. Hamad and Mark J. MacLachlan*



20955

Exploring nitrogen-mediated effects on Fe and Cu cluster development in graphene: a DFT study

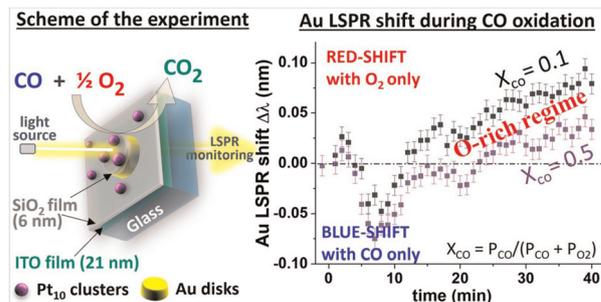
L. A. Alvarado-Leal,* J. I. Paez-Ornelas, M. A. Ruiz-Robles, J. Guerrero-Sánchez, J. M. Romo-Herrera,* H. N. Fernández-Escamilla, Noboru Takeuchi and E. G. Perez-Tijerina



20968

Nanoplasmonic sensing to study CO and oxygen adsorption and CO oxidation on size-selected Pt₁₀ clusters

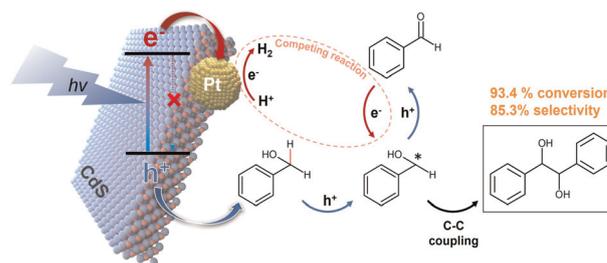
Benjamin Demirdjian,* Mykhailo Vaidulych,* Igor Ozerov, Frédéric Bedu, Štefan Vajda and Claude R. Henry



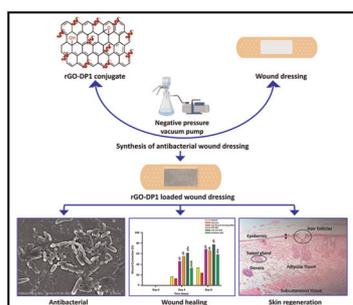
20977

Selective photocatalytic C–C coupling of benzyl alcohol into hydrobenzoin using Pt-deposited CdS nanosheets passivated with cysteamine

Pan Lu, Gui-Min Kim, Nianfang Wang, Joongjai Panpranot, Whi Dong Kim* and Doh C. Lee*



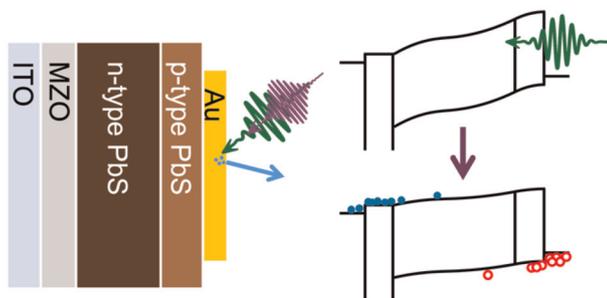
20986



Development of a two-dimensional peptide functionalized-reduced graphene oxide biomaterial for wound care applications

Shubhi Joshi, Panchali Barman, Mayank Maan, Hemant Goyal, Sheetal Sharma, Rajesh Kumar, Gaurav Verma and Avneet Saini*

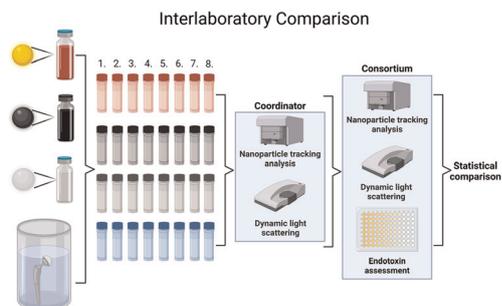
21002



Interface-resolved photovoltage generation dynamics and band structure evolution in a PbS quantum dot solar cell

Tamara Sloboda, Birgit Kammlander, Elin Berggren, Stefania Riva, Erika Giangrisostomi, Ruslan Ovsyannikov, Håkan Rensmo, Andreas Lindblad and Ute B. Cappel*

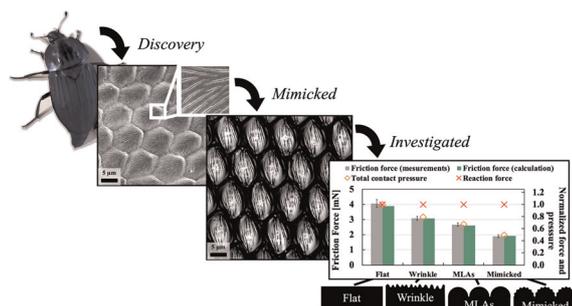
21011



Interlaboratory comparison of endotoxin contamination assessment of nanomaterials

G. Hannon,* B. J. Heaton, A. Plant-Hately, C. David, N. J. Liptrott, A. Egizabal, A. Ayerdi-Izquierdo, N. Alvarez, O. Ibarrola, A. A. Celaya, A. Del Pozo Perez, N. Lazcanoiturburu, I. Luzuriaga, F. D. Zegeye, S. Zienolddiny-Narui, A. Jacobs, A. Van Driessche, I. Nelissen, I. Abasolo, F. Andrade, N. Ventosa, E. González-Mira, A. Carreño and A. Prina-Mello*

21021



Friction-reduction effect of the hierarchical surface microstructure of carrion beetle by controlling the real contact area

Kazuma Tsujioka, Yuji Hirai, Masatsugu Shimomura and Yasutaka Matsuo*

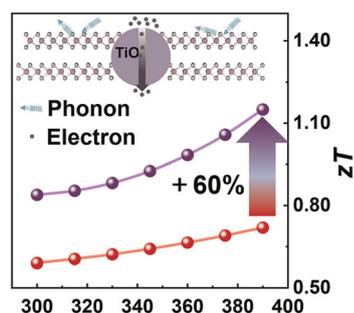


PAPERS

21031

Decoupled electron–phonon transport in Ag₂Se thermoelectric materials through constructing TiO₂/MoS₂ co-decorated cell-membrane-mimic grain boundaries

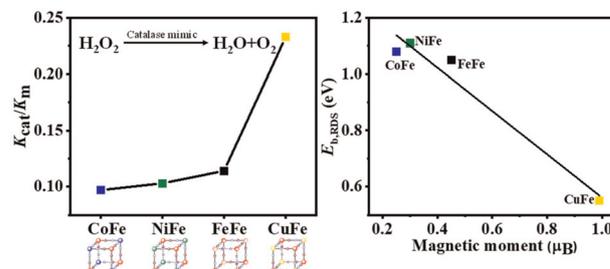
Hanwen Hu, Yiyao Liao, Shanshan Tan, Chen Li, Jun Tang, Kun Zheng* and Lei Yang*



21039

Insights into the mechanism of a substituted metal center regulating the enzymatic activity of Prussian blue analogues for catalytic antioxidation

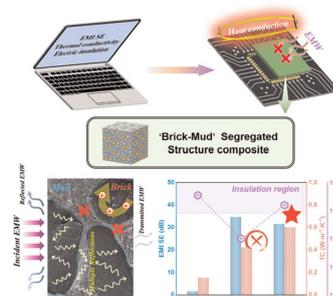
Genxiu Zhou, Qingrong Dong, Zhi Li, Feifei Yang, Xiaomei Shen,* Quan Liu, Ge Fang* and Cuicui Ge*



21048

Crafting “brick–mud” segregated nanocomposites: a novel approach to superior electromagnetic interference shielding, electrical insulation, and thermal conductivity in biopolymers

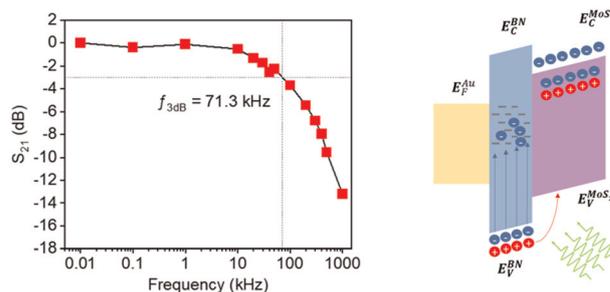
Tong Liu, Huiyao Feng, Linbing Deng, Chenhong Jin, Henri Vahabi, Mohammad Reza Saeb and Tairong Kuang*



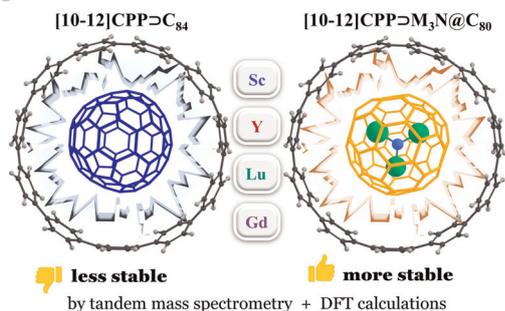
21061

A fast 2D MoS₂ photodetector with ultralow contact resistance

Wangheng Pan, Anran Wang, Xingguang Wu, Xialian Zheng, Hu Chen, Shuchao Qin, Zheng Vitto Han, Siwen Zhao,* Rong Zhang and Fengqiu Wang*



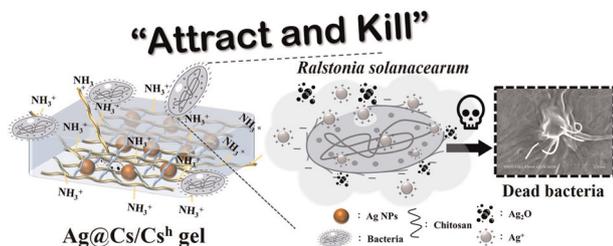
21068



Stability of [10–12]cycloparaphenylene complexes with pristine fullerenes C_{76,78,84} and endohedral metallofullerenes M₃N@C_{78,80}

Markus Freiberger, Olga A. Stasyuk, M. Eugenia Pérez-Ojeda, Luis A. Echegoyen, Miquel Solà* and Thomas Drewello*

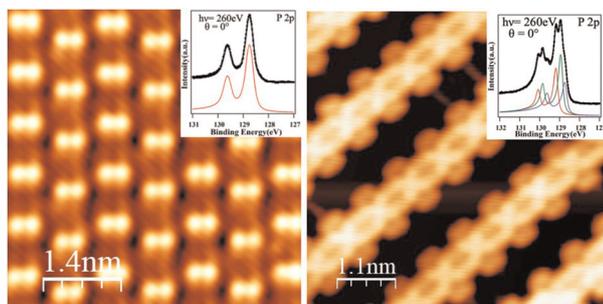
21077



The attract–kill inhibition mechanism in Ag/chitosan hydrogel for long-acting control of *Ralstonia solanacearum*

Yi-Hsin Chien,* Bo-Yan Lin, Han-Hsiang Shih, Chun-Yu Chen and Peng-Chieh Chen

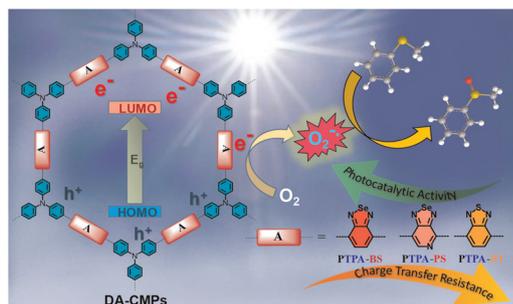
21088



Synthesis and properties of phosphorus nanostructures on Au(110)

Xiao Zhang, Hamza El kari, Hanna Enriquez, Azzedine Bendounan, Abdelkader Kara, Yannick J. Dappe and Hamid Oughaddou*

21096



Effect of two-fold single-atom substitutions (S, Se; C, N) in band gap engineered donor–acceptor conjugated microporous polymers on the efficient aerobic photooxidation of aryl sulfides

Soumitra Sau, Suman Karmakar, Flora Banerjee and Suman Kalyan Samanta*

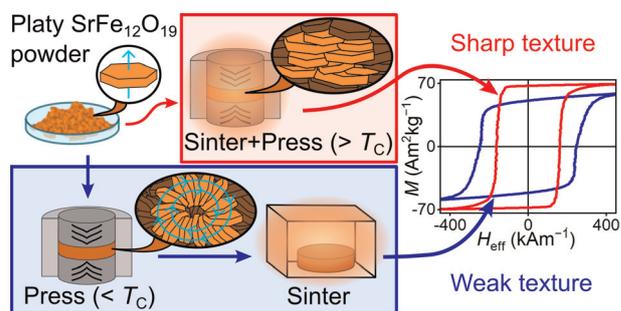


PAPERS

21106

Grain alignment in hexaferrite permanent magnets by compaction at room and elevated temperatures

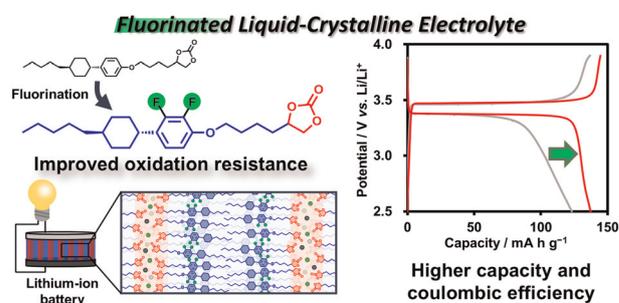
Jacob L. Valentin, Frederik H. Gjørup, Cecilie G. Knudsen and Mogens Christensen*



21118

Lithium-ion batteries with fluorinated mesogen-based liquid-crystalline electrolytes: molecular design towards enhancing oxidation stability

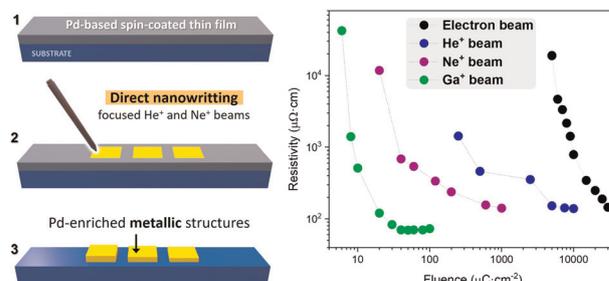
Shingo Takegawa, Kazuma Hamaguchi, Eiji Hosono, Shunsuke Sato, Go Watanabe, Junya Uchida and Takashi Kato*



21128

Fabrication of palladium-enriched metallic structures by direct focused He⁺ and Ne⁺ beam nanowriting from organometallic thin films: a comparison with Ga⁺ and e⁻ beams

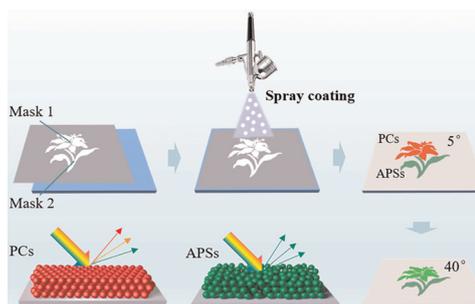
Lucía Herrero, Alba Salvador-Porroche, Gregor Hlawacek, Pilar Cea and José María De Teresa*



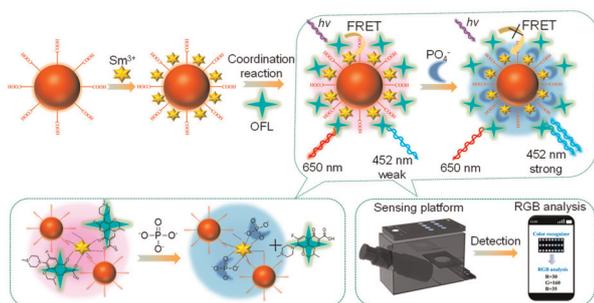
21138

Rapid fabrication of tunable structural color patterns by spray-coating

Jingran Huang, Guiwu Liu, Ting Lü* and Ling Bai*



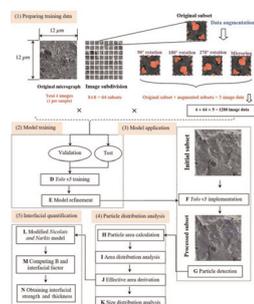
21147



A handheld fluorescent platform integrated with a Sm(III)-CdTe quantum dot-based ratiometric nanoprobe for point-of-use determination of phosphate

Shengnan Yin and Zheng Li*

21155



Deep learning-assisted morphological segmentation for effective particle area estimation and prediction of interfacial properties in polymer composites

R. Mohsenzadeh,* B. H. Soudmand, A. H. Najafi, F. Hazzazi and M. Fattahi*

