

## IN THIS ISSUE

ISSN 1144-0546 CODEN NJCHES 48(23) 10327-10778 (2024)



### Cover

See Kosuke Kuroda, pp. 10341-10346. Image reproduced by permission of Kosuke Kuroda from *New J. Chem.*, 2024, 48, 10341.

## PERSPECTIVES

10341

### Bioethanol fermentation in the presence of ionic liquids: mini review

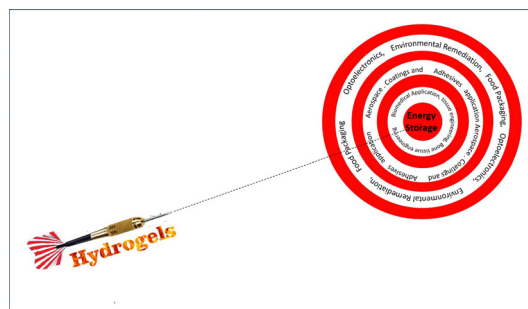
Kosuke Kuroda



10347

### Engineering the future with hydrogels: advancements in energy storage devices and biomedical technologies

Amit Kumar Sharma,\* Reetu Sharma,\*  
Balaram Pani, Anjana Sarkar and Mamta Tripathi



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Elemental answers

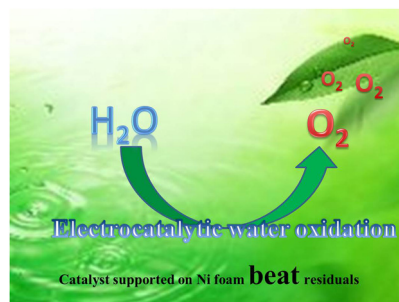


## COMMUNICATION

10370

### Self-supporting catalysts beat powder electrodes for the electrocatalytic oxygen evolution reaction: a cobalt-based catalyst as an example

Huipeng Zhao, Xiaoqiang Du\* and Xiaoshuang Zhang

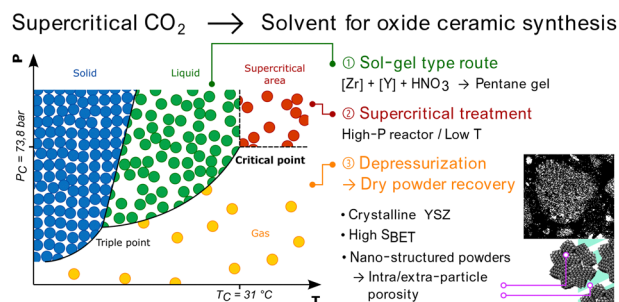


## PAPERS

10374

### Yttria-stabilized zirconia (8YSZ) synthesis in a supercritical CO<sub>2</sub>-assisted process: a parametric study for achieving cubic phase stability

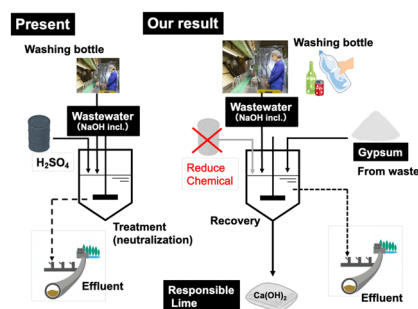
Loan Avédikian, Julien Vulliet, Thomas David and Audrey Hertz\*



10384

### Environmentally responsible production of lime from recycled gypsum and weakly alkaline wastewater

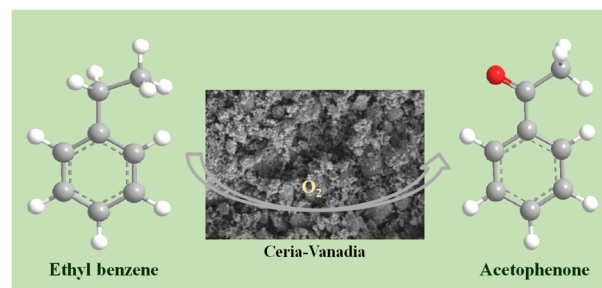
Masamoto Tafu,\* Asumi Suzuki, Juna Nakamura, Takuya Fukumura, Tomofumi Tobe and Noboru Tobe



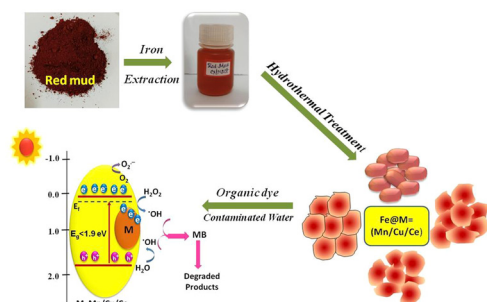
10391

### Mesoporous ceria-supported vanadia catalysts for selective aerobic oxidation of ethylbenzene

Silligandla Nazeer, Palli Sitaramulu, Kamma Yogendra, Shivani Dalal, Palnati Manoj Kumar, Bojja Sreedhar, Benjaram M. Reddy and Tumula Venkateshwar Rao\*



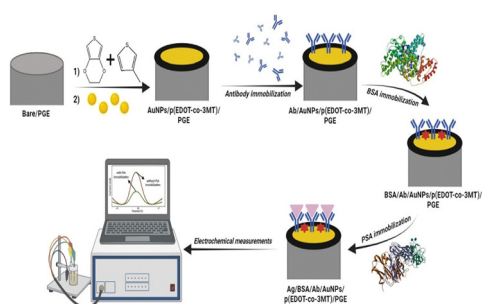
10401



### Visible light induced photocatalytic removal of an organic dye using metal doped iron oxide based catalysts derived from red mud

Adwitiya Chakraborty, Soumita Samajdar, Srabanti Ghosh\* and Milan Kanti Naskar\*

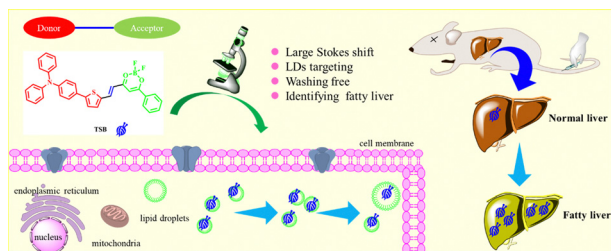
10415



### Disposable and ultrasensitive label-free gold nanoparticle patterned poly(3,4-ethylenedioxythiophene-co-3-methylthiophene) electrode for electrochemical immunosensing of prostate-specific antigen

Selen Uruc, Ebrar Dokur, Ozgme Gorduk and Yucel Sahin\*

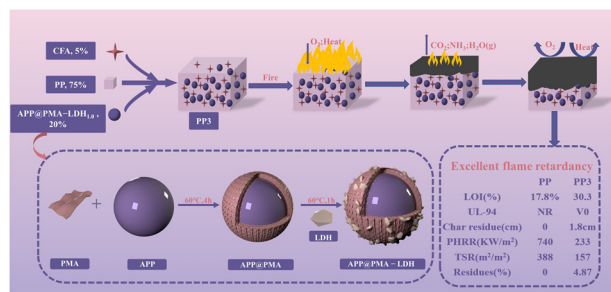
10427



### A triphenylamine-based fluorescent probe with large Stokes shift for wash-free imaging of lipid droplets and diagnosis of fatty liver

Yi Deng, Zhiyu Wang, Jie Wang, Sichen Zhang, Jiale Li, Aobo Sun, Xue Zhang, Lei Hu\* and Hui Wang\*

10432



### Ammonium polyphosphate@melamine phytate-layered double hydroxides: a loaded core-shell flame retardant for flame retardancy and smoke suppression in polypropylene

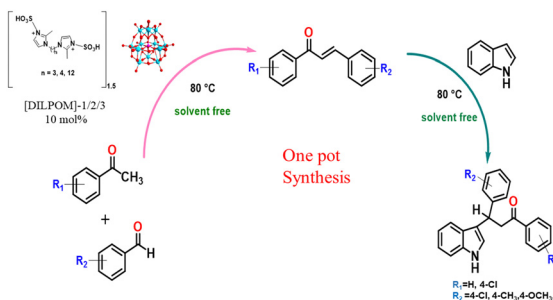
Da Li, Mingxin Feng, Haoran Cai, Yuhong Zhang, Haoxu Yao, Zewu Zhang, Jiehua Bao, Xiaohai Bu and Yuming Zhou\*



10446

### Study of the catalytic activity of methylene-bridged dicationic $-\text{SO}_3\text{H}$ -functionalized imidazolium phosphomolybdate hybrids for the one-pot sequential synthesis of 3-substituted indoles

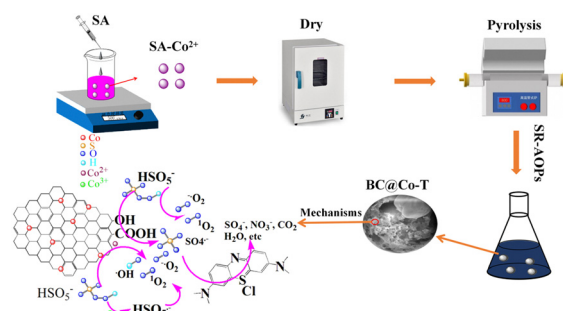
Niharika Kashyap, Sukanya Das, Subham Paul, Siddhartha K. Purkayastha, Ankur K. Guha and Ruli Borah\*



10463

### Highly efficient peroxymonosulfate activation by cobalt nanoparticles encapsulated in alginate-derived carbon for methylene blue degradation

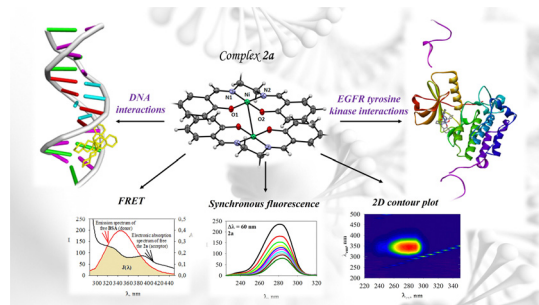
Jingyu Zhao, Yunlong Shi, Yue Liu, Jiayi Zhang, Yuhong Qin, Xiaomao Song,\* Qiang Lin, Changjiang Yu,\* Anqi Shang and Yuxiao Fei



10475

### A comparative study on the synthesis and crystal structures of Ni(II) complexes bearing tetradentate $\text{N}_2\text{O}_2$ donor Schiff bases: biomolecular interactions, cytotoxicities and molecular docking

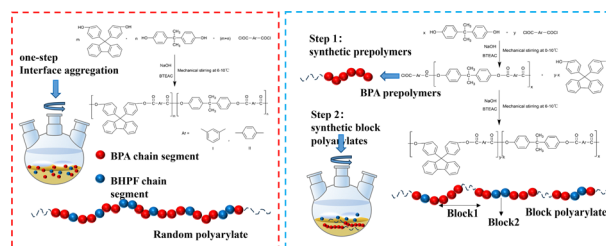
Duygu İnci Özbağcı,\* Sevinç İlkar Erdağı, İpek Aydın, Rahmiye Aydın, Yunus Zorlu and Ferda Arı



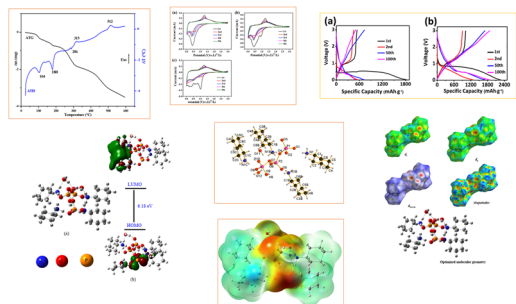
10497

### Synthesis and properties of novel block-structured polyarylates containing fluorene: a two-step interface polymerization

Zhoufeng Wang,\* Yingying Liu, Bolin Wang, Xiubo Long and Wenlong Yao



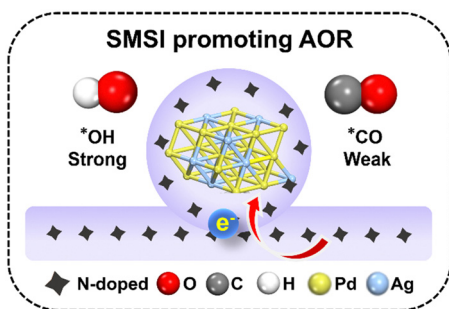
10507



### Crystal structure and electronic structure calculations of a novel organic triphosphate complex: excellent electrochemical properties with ultra-efficient lithium storage capacity

Jawher Makhlof, Youness El Bakri,\* Wensheng Bian, Atazaz Ahsin, Rashad Al-Salahi, Arto Valkonen and Wajda Smirani

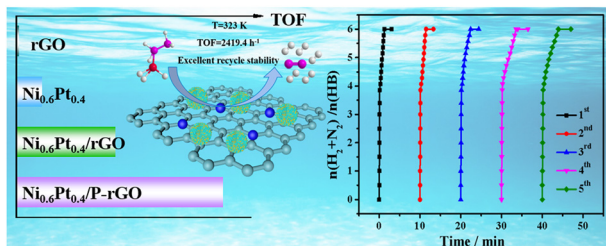
10522



### Electronic state regulation induced by the strong metal–support interactions boosts the performance of alcohol oxidation reactions

Yaheng Wang, Fengshou Yu,\* Peng Guo, Yang You, Zhihao Feng, Yuzhuo Zhou, Shaobo Zhang, Bo Zhang and Lu-Hua Zhang\*

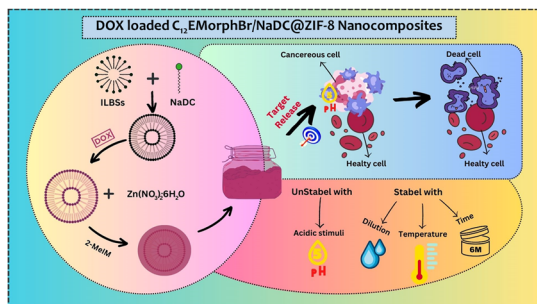
10530



### Synergistic interaction between NiPt nanoparticles and phosphorus-doped graphene support boosts hydrogen generation from hydrazine borane

Junnuan Wang, Yubo Liu, Henan Shang, Ze Qin, Qiuyue Fan,\* Dewu Yue\* and Sijia Li\*

10538



### Metal organic framework coated vesicular nano-aggregates: an intelligent 'vehicle' for sustained and leakage proof release of doxorubicin

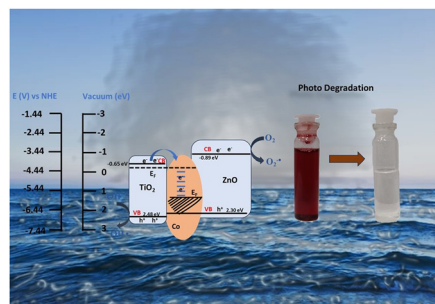
Hiral Ukani, Bhagyesh Parmar, Nildhara Parsana, Sugam Kumar, Vinod K Aswal, Omar El Seoud and Naved Malek\*



10552

### Creation of a facile heterojunction in Co/ZnO–TiO<sub>2</sub> for the photocatalytic degradation of alizarin S

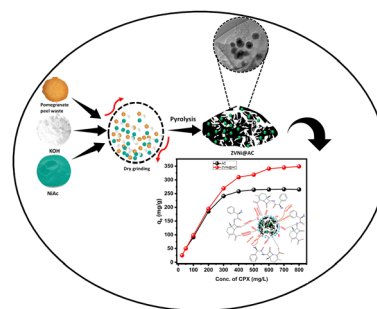
Aditi Prabhu, Preetha Chandrasekharan Meenu and Sounak Roy\*



10563

### Single-step pyrolysis of biomass waste-derived activated carbon encapsulated zero-valent nickel NPs for the purification of antibiotic-contaminated water

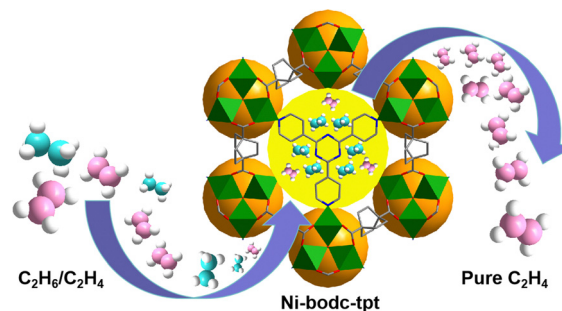
Badr M. Thamer,\* Faiz A. Al-aizari, Hany S. Abdo, Mohamed M. El-Newehy and Abdullah M. Al-Enizi



10577

### A pacs-type metal–organic framework with high adsorption capacity for inverse C<sub>2</sub>H<sub>6</sub>/C<sub>2</sub>H<sub>4</sub> separation

Kuo Zhang, Jing-Jing Pang, Xin Lian, Zi-Han Song, Yue-Chao Yuan, Hongliang Huang,\* Zhao-Quan Yao\* and Jian Xu\*



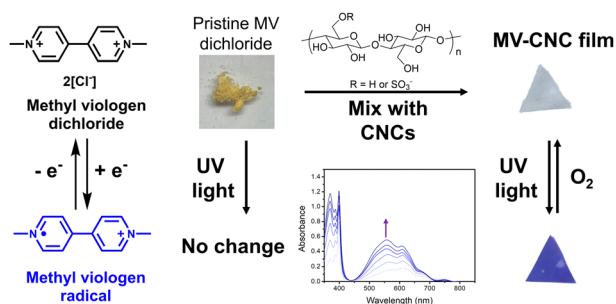
10584

### Expanding the versatility of trihalophenols as molecular templates to achieve a series of [2+2] cycloaddition reaction involving 1,2-bis(2-pyridyl)ethylene

Max Andren, Daniel K. Unruh, Herman R. Krueger Jr and Ryan H. Groeneman\*



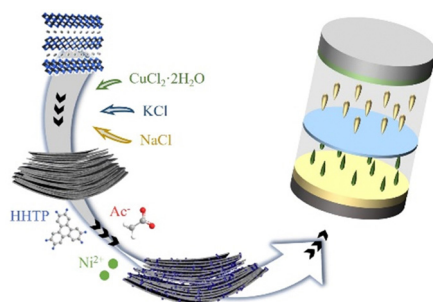
10588



### Tailorable and photochromic multifunctional methyl viologen/cellulose nanocrystal (CNC) films

Yihan Shi, Miguel A. Soto, Zongzhe Li and Mark J. MacLachlan\*

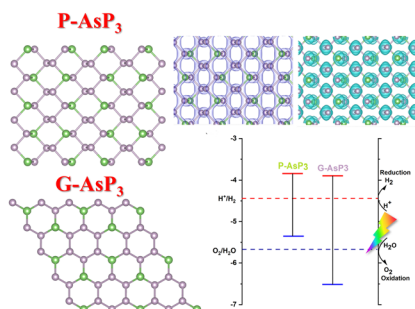
10593



### Integration of conductive MOF and MXene for high-performance supercapacitor

Rongmei Zhu, Yijing Gu, Limei Liu, Jiadan Lu and Huan Pang\*

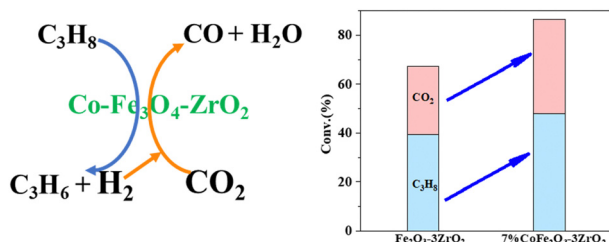
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### Computational prediction of phosphorene and graphene-like AsP<sub>3</sub> monolayers

Syed Ali Asghar, Abdul Jalil,\* Noor Ul Ain and Arooba Kanwal

10607



### Co-modified Fe<sub>2</sub>O<sub>3</sub>-ZrO<sub>2</sub> for catalyzing propane and CO<sub>2</sub> reaction to propylene

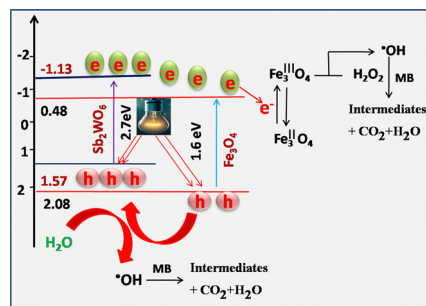
Yuan Wang, Zhen Wan, Qingxiang Ma, Jianli Zhang, Subing Fan, Xinhua Gao and Tian-Sheng Zhao\*



10616

### Synthesis of template-free magnetite nanospheres grown on $\text{Sb}_2\text{WO}_6$ hierarchical structures for sunlight-driven photo-Fenton catalysis of organic pollutants

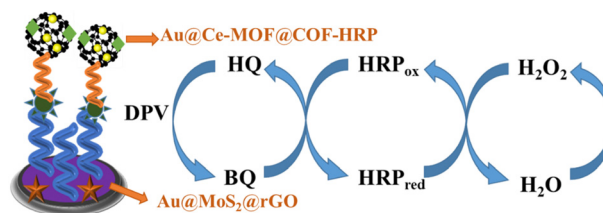
Abeer A. AlObaid, Vipin Bihari Shrotriya, Girraj Sharma, Ghazanfar Nazir and Zia Ul Haq\*



10628

### An electrochemical aptasensor based on Ce-MOF@COF to detect carcinoembryonic antigen

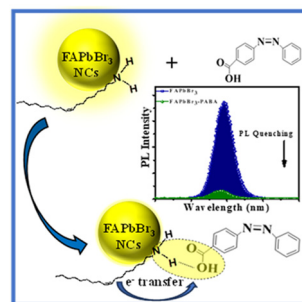
Shurui Li, Tianzi Cao, Han Zhang, Yuanling Sun\* and Chuannan Luo\*



10636

### Photo-driven electron transfer from $\text{FAPbBr}_3$ perovskites nanocrystals to photodeactivatable 4-(phenylazo) benzoic acid

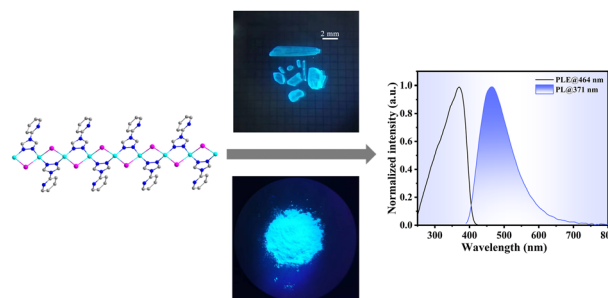
Poshmal Sumreen, Maria Mukhtar, Muhammad Adnan Khalid, Muhammad Mubeen, Laraib Kiran, Amna Iqbal and Azhar Iqbal\*



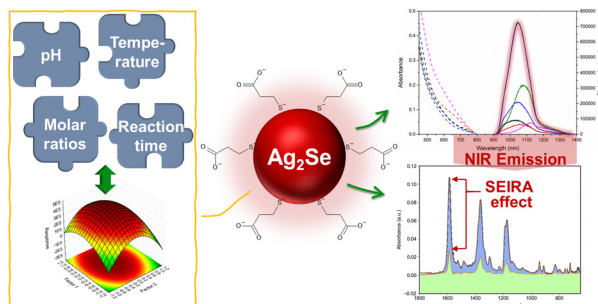
10646

### Construction and characterization of an inorganic–organic hybrid copper(I) iodide coordination polymer with semiconducting luminescence

Hui Yang, Xiaofei Kuang,\* Ying-Hao Mi, Ming-Ming Wang, Yuqing Zhao, Fulin Lin and Can-Zhong Lu\*



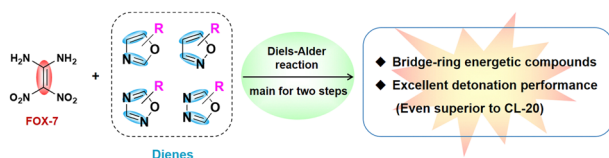
10653



### Enhancing the optical properties of hydrophilic $\text{Ag}_2\text{Se}$ NIR-II quantum dots by using chemometric approaches towards (bio)sensing applications

Izabel G. de Souza Sobrinha, Felipe Cunha da Silva Trindade, Ingrid W. V. Gonçalves, Claudete F. Pereira, Goreti Pereira\* and Giovanna A. L. Pereira\*

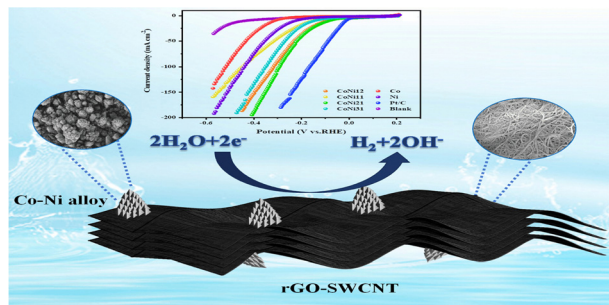
10664



### Computational insight into the reactivity of FOX-7 and its bridge-ring energetic derivatives from Diels–Alder reactions

Mei Xue, Yunlu Li, Pengcheng Zhang and Chunlin He\*

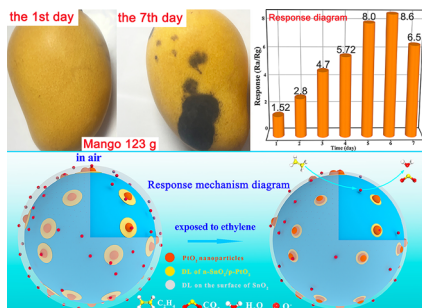
10676



### Nanostructured nickel–cobalt alloy/rGO-SWCNT thin film as an efficient electrocatalyst for hydrogen evolution reactions

Qing Wan, Congming Tang, Kai Ma and Xinli Li\*

10686



### A highly sensitive ethylene gas sensor based on $\text{PtO}_2$ -decorated $\text{SnO}_2$ used to monitor the ripening and spoilage of fruits and vegetables that are stored at room temperature

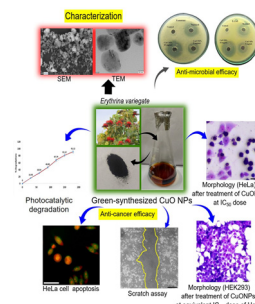
Chunjie Li, Xiaoyu You, Xin Zhao, Peisi Yin, Xingyu Liu, Fei Song, Zhipeng Tang, Huaian Fu, Kai Zhang, Shanshan Yu, Yongqi Yang, Xiangmin Du, Qiang Jing\* and Bo Liu\*



10697

### Biogenic synthesis of copper oxide nanoparticles: comprehensive *in vitro* profiling for cervical cancer treatment and antibacterial strategies

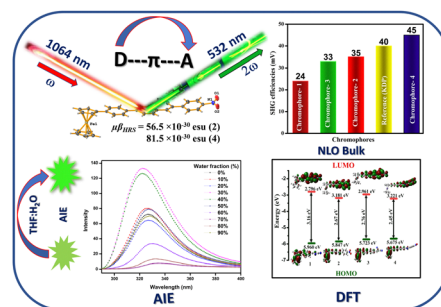
Gouranga Dutta, Dipanjan Ghosh, Krithiga Venkatesan, Gopal Chakrabarti, Abimanyu Sugumaran\* and Damodharan Narayanasamy\*



10717

### Effect of the phenyl group on the non-linear optical (NLO) and aggregation induced emission (AIE) properties of ferrocene conjugated linear D- $\pi$ -A/D- $\pi$ -A- $\pi$ -A chromophores

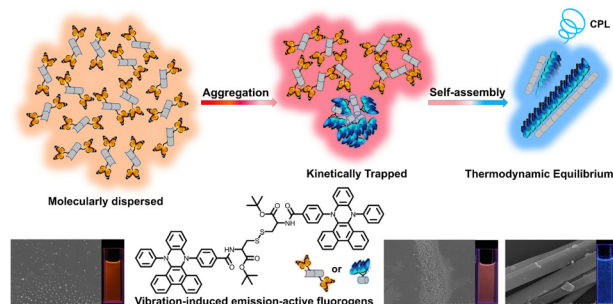
Thamodharan Viswanathan, Ezhumalai David, Selvam Prabu, Kamini Mishra, Muthuramalingam Prakash, Swaminathan Shanmugan and Nallasamy Palanisami\*



10730

### Self-revealing kinetically captured self-assembly of a *N,N'*-diphenyl-dihydrodibenzo[a,c]phenazine derivative

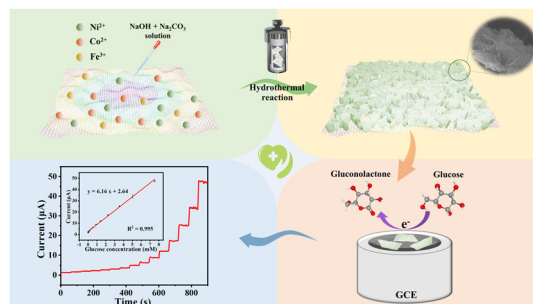
Qijing Wang, Zhaozhi Zhang and Ju Mei\*



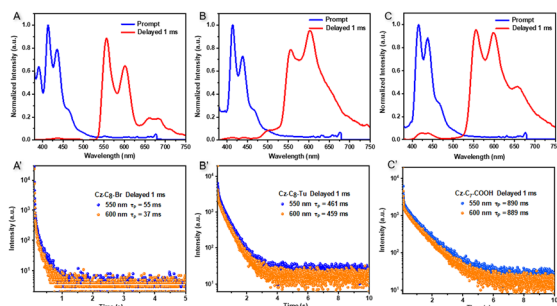
10739

### Highly stable non-enzymatic glucose sensor based on ternary NiCoFe-layered hydroxide grown on graphene oxide

Lumin Liao, Fen Xu,\* Lixian Sun,\* Yumei Luo,\* Yanxun Guan, Jie Ouyang, Julian Zeng, Zhong Cao, Hongge Pan and Dianpeng Li



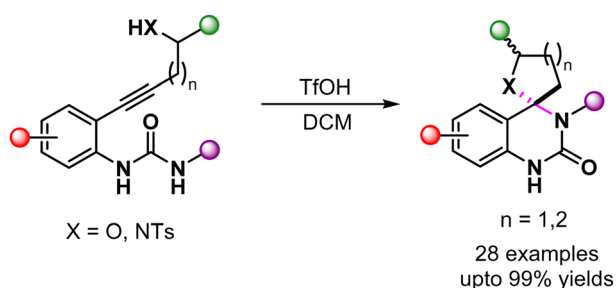
10748



### Functionalized tails influence photoluminescence emissions for advanced applications in the field of time-resolved information input and erasure

Haowen Huang, Yasong Cao, Zhonghua Zhao, Jiatong Xu, Cheng Zeng, Richao Shen, Jiawei Lv, Ziqiang Lei and Hengchang Ma\*

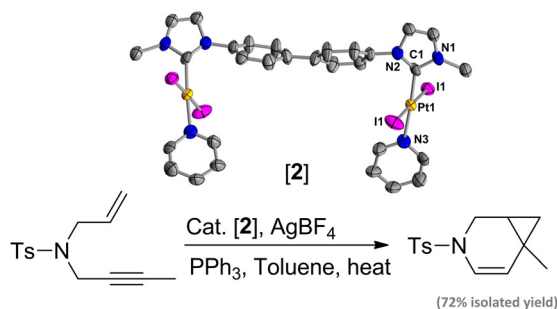
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### Regioselective synthesis of spiro quinazolinones via sequential hydroalkoxylation and intramolecular amide-cyclization of alkynol ureas

Subhamoy Biswas, Surjya Kumar Bora, Pallav Jyoti Arandhara and Anil K. Saikia\*

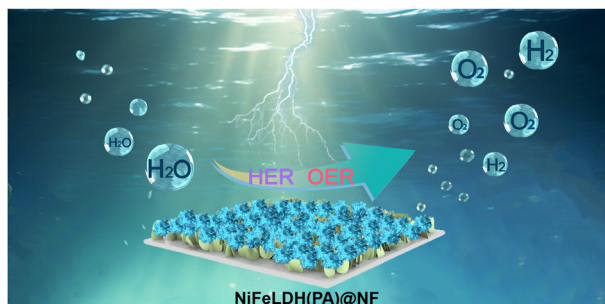
10762



### Dinuclear platinum(II) complexes with biphenyl-based bis-carbene ligands

Rajat Naskar, Bhaskar Mondal, Diya Sengupta, Aninda Ghosh, Somenath Garai and Ramananda Maity\*

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### Phytic acid treated nickel–iron hydroxide promotes efficient electrocatalytic overall water splitting

Zengfan Liu, Tingyu Zhang, Tiandi Tang\* and Jun Li\*

