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IN THIS ISSUE

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Cover

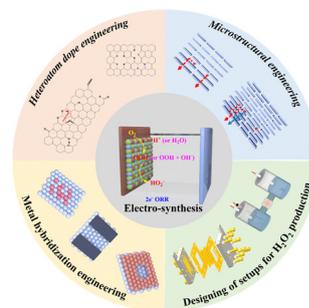
See Yasuyuki Nakamura, Chih-Feng Huang *et al.*, pp. 5270–5273. Image reproduced by permission of Yasuyuki Nakamura from *Chem. Commun.*, 2024, 60, 5270.

HIGHLIGHT

5232

Recent advances in electrosynthesis of H₂O₂ via two-electron oxygen reduction reaction

Ao Yu, Shengwen Liu and Yang Yang*

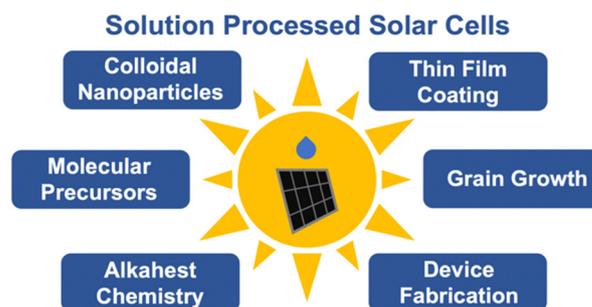


FEATURE ARTICLE

5245

Solution processed metal chalcogenide semiconductors for inorganic thin film photovoltaics

Jonathan W. Turnley and Rakesh Agrawal*



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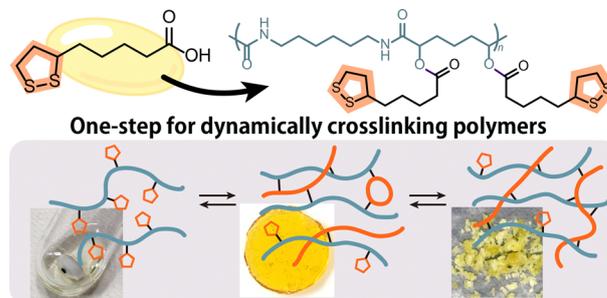
Fundamental questions
Elemental answers

COMMUNICATIONS

5270

Passerini polymerization of α -lipoic acid for dynamically crosslinking 1,2-dithiolane-functionalized polymers

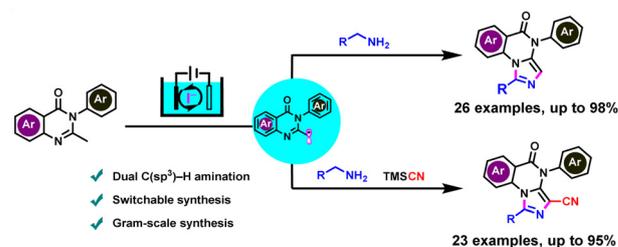
Yasuyuki Nakamura,* Yi-Shen Huang,
Chih-Feng Huang* and Sadaki Samitsu



5274

Electrochemical dual oxidative C(sp³)-H amination: switchable synthesis of imidazo-fused quinazolines

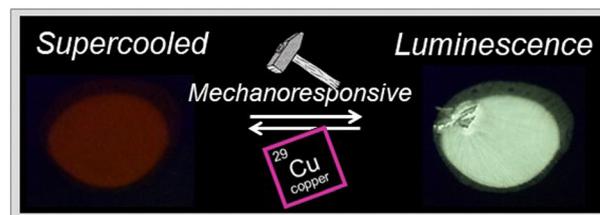
Chengbin Du, Yan Zhang, Tong Li, Zhenggen Zha and
Zhiyong Wang*



5278

Mechanoresponsive luminescence triggered by phase transition of a supercooled copper(i) complex

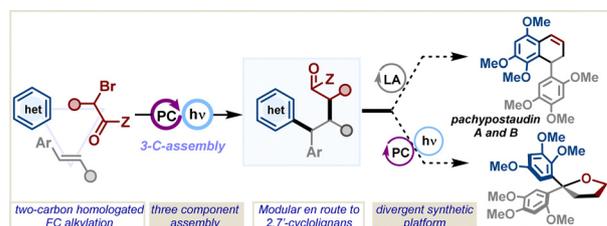
Jérémy Delafoulhouze, Marie Cordier, Jean-Yves Mevellec,
Florian Massuyeau, Olivier Hernandez, Camille Latouche
and Sandrine Perruchas*



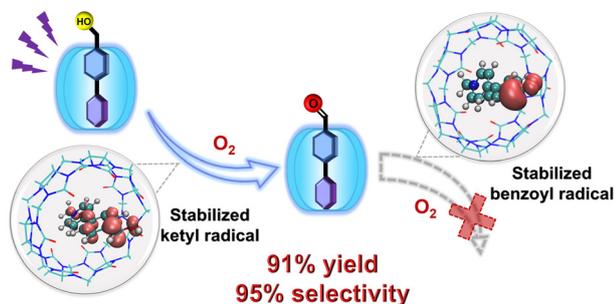
5282

A two carbon homologation of Friedel–Crafts alkylation enabled by photochemical alkene stitching: modular assembly of cyclolignans

Shyamal Pramanik, Apurba Samanta and Soumitra Maity*



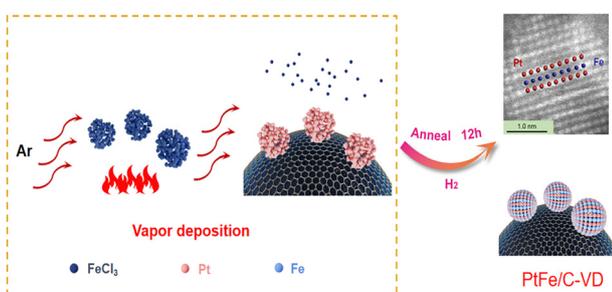
5286



Supramolecularly modulated carbon-centered radicals: toward selective oxidation from benzyl alcohol to aldehyde

Xingchen Tang, Shan Mei, Jiang-Fei Xu* and Xi Zhang

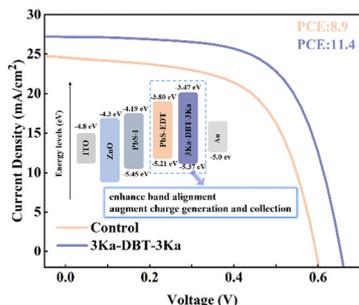
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Gram-scale synthesis of small-sized PtM intermetallics as high-performance catalysts for the hydrogen evolution reaction

Bentian Zhang,* Lijie Zhang, Han Yang, Mengtao Shan, Lei Bai,* Zirong Li and Ming Sun

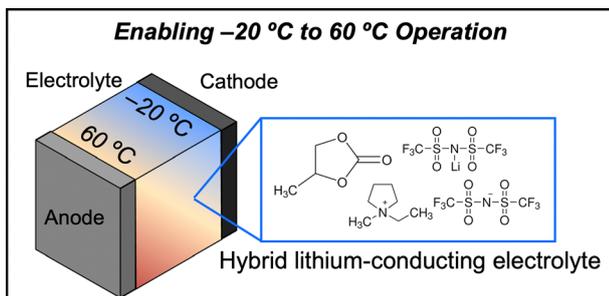
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Organic hole transport materials for high performance PbS quantum dot solar cells

Li Zhang, Shunqiang Wang, Yi Shi, Jiazi Xu, Shuang Cao, Zijian Deng, Yong Chen, Junjie Zhang, Xichuan Yang, Zhen Meng,* Quli Fan* and Bin Sun*

5298



Enabling wide temperature battery operation with hybrid lithium electrolytes

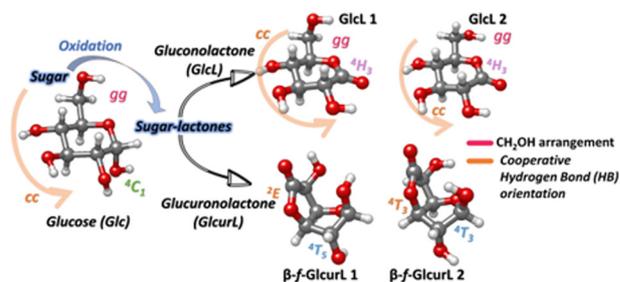
Spencer A. Langevin, Tanner Hamann, Courtney McHale and Jesse S. Ko*



5302

Structural effects of oxidation on sugars: glucose as a precursor of gluconolactone and glucuronolactone

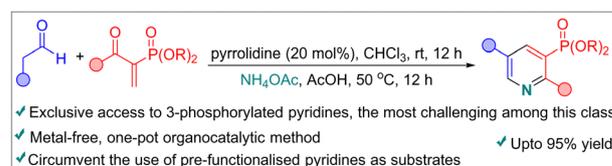
Maidar Parra-Santamaria, Aran Insausti, Elena R. Alonso, Francisco J. Basterretxea and Emilio J. Cocinero*



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Organocatalytic access to 3-pyridylphosphonates from vinyl phosphonates and aldehydes

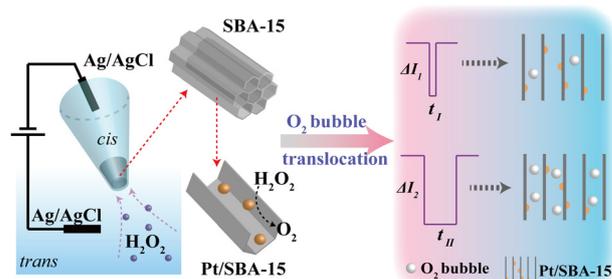
Ram Subhawan Verma, Anil Kumar Khatana, Deepika Verma and Bhoopendra Tiwari*



5310

Catalytic ability characterization of *in situ* synthesized Pt NP coated SBA-15 within a sub-micropipette

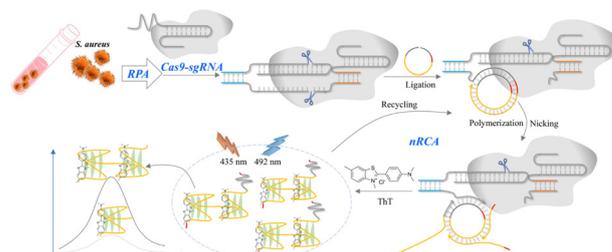
Rui Zhang, Qiang Zeng,* Min Wang and Lishi Wang*



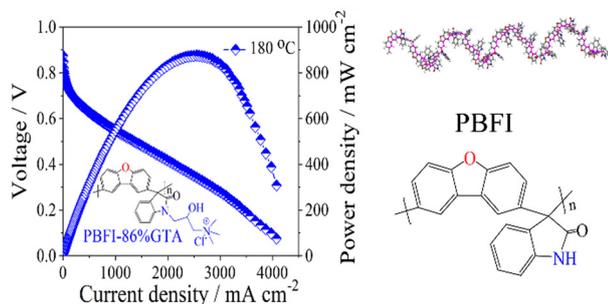
5314

Integrating recombinase polymerase amplification with CRISPR/Cas9-initiated nicking-rolling circle amplification in *Staphylococcus aureus* assay

Jianguo Xu,* Tong Zhou, Danni Xue, Zhuqi Sui, Haidong Yang, Xinyue Yuan and Qi Wang*



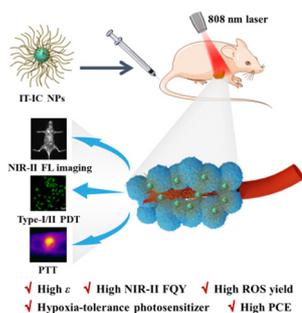
5318



Preparation of novel membranes with multiple hydrogen bonding sites and π -conjugated structure for high temperature proton exchange membrane fuel cells

Qian Wang, Lele Wang, Meichen Zhang, Zhen Peng, Yao Lu, Peiru Lv and Jingshuai Yang*

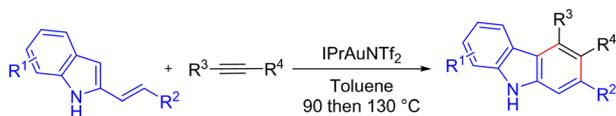
5322



An NIR-II-emitting type-I photosensitizer for efficient hypoxic tumor phototheranostics

Qi Wang, Ruoqing Wang, Xiaoyuan Wang, Mingxuan Fu, Yicong Gao, Jianfeng Feng, Renyong Geng,* Zhen Yuan, Quli Fan and Feng Lu*

5326

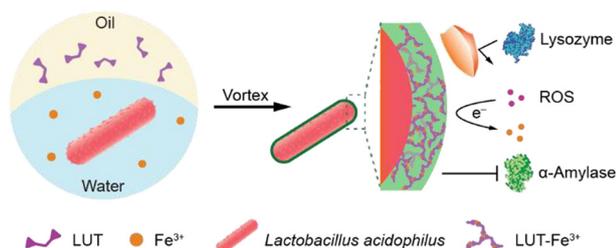


- readily available starting materials
- broad substrate scope
- low catalyst loading (1-2 mol %)
- functionalized carbazoles

Gold-catalyzed benzannulations of 2-alkenylindoles with alkynes: a protecting-group-free regioselective approach to carbazoles

Pathan Mosim Amin, Weilin Wang, Chao Wang, Junrui Zhou and Youliang Wang*

5330



Biphasic water–oil systems for functional augmentation of probiotic *Lactobacillus acidophilus* nanoencapsulated in luteolin- Fe^{3+} shells

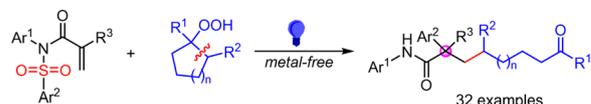
Duc Tai Nguyen, Sang Yeong Han, Filip Kozłowski, Gulaim A. Seisenbaeva, Vadim G. Kessler, Beom Jin Kim and Insung S. Choi*



5334

Photoredox-catalyzed alkylarylation of activated alkenes *via* a ring-opening/Truce–Smiles rearrangement cascade

Jin-Hua Zhang, Hong-Jie Miao, Hong Xin, Gang Wang, Xiaoyu Yang, Xianjun Wang, Pin Gao, Xin-Hua Duan and Li-Na Guo*



32 examples
up to 78% yield

- ✓ free of metal and additives
- ✓ mild and redox-neutral conditions
- ✓ keto-amides containing 4° carbon center
- ✓ excellent functional group compatibility

5338

Ultralong-life and high-capacity magnesium/sodium hybrid-ion battery using a ternary CoSe/NiSe₂/CuSe₂ cathode and dual-ion electrolyte

Ting Zhou, Yajun Zhu, Yun Shen, Hui Qiu, Tianli Han, Jinjin Li* and Jinyun Liu*

