

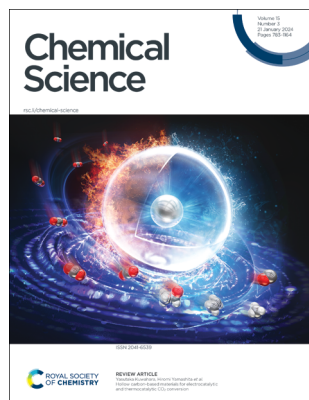
# Chemical Science

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## IN THIS ISSUE

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**Cover**  
See Yasutaka Kuwahara, Hiromi Yamashita *et al.*, pp. 854–878. Image reproduced by permission of Yasutaka Kuwahara from *Chem. Sci.*, 2024, 15, 854.



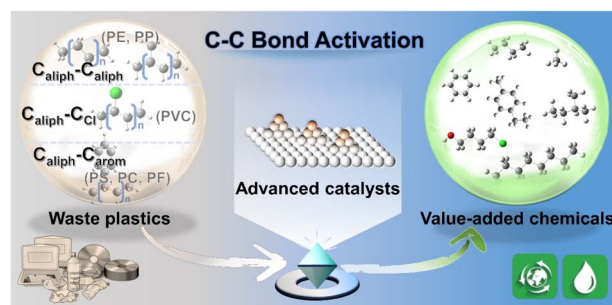
**Inside cover**  
See Yu Wang *et al.*, pp. 896–905. Image reproduced by permission of Yu Wang from *Chem. Sci.*, 2024, 15, 896.

## PERSPECTIVES

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### Precise activation of C–C bonds for recycling and upcycling of plastics

Hongshun Ran, Shuo Zhang, Wenyi Ni and Yaxuan Jing\*



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### The thermodynamics and kinetics of depolymerization: what makes vinyl monomer regeneration feasible?

Victoria Lohmann, Glen R. Jones, Nghia P. Truong and Athina Anastasaki\*



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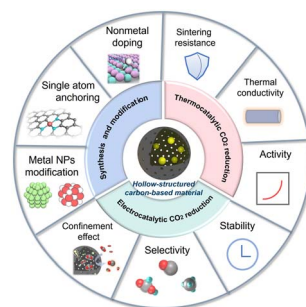
Fundamental questions  
Elemental answers

## REVIEWS

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Hollow carbon-based materials for electrocatalytic and thermocatalytic CO<sub>2</sub> conversion

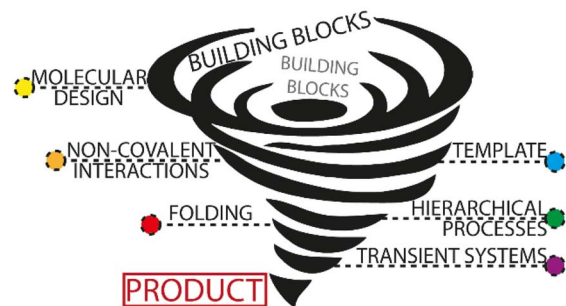
Kaining Li, Yasutaka Kuwahara\* and Hiromi Yamashita\*



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## Dynamic covalent synthesis

Fabien B. L. Cougnon,\* Artur R. Stefankiewicz\* and Sébastien Ulrich\*

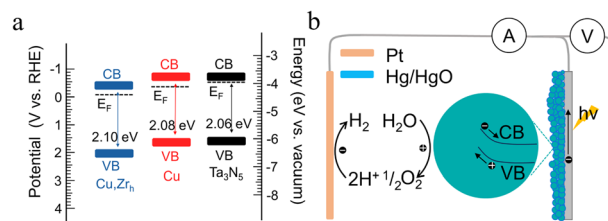


## EDGE ARTICLES

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## Engineering band structuring via dual atom modification for an efficient photoanode

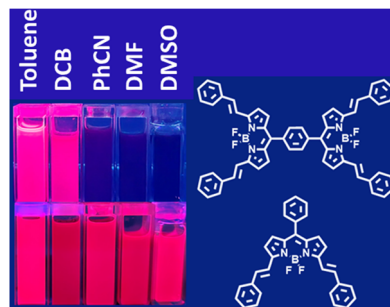
Xiaodong Wang, Huijuan Zhang, Chuanzhen Feng and Yu Wang\*



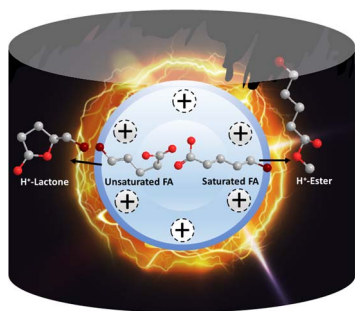
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## Symmetry breaking charge transfer leading to charge separation in a far-red absorbing bisstyryl-BODIPY dimer

Aida Yahagh, Ram R. Kaswan, Shahrzad Kazemi, Paul A. Karr and Francis D'Souza\*



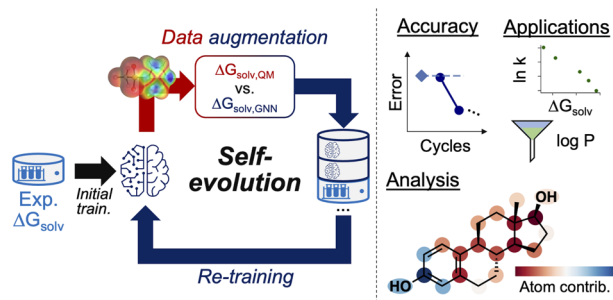
914



### Charge inversion under plasma-nanodroplet reaction conditions excludes Fischer esterification for unsaturated fatty acids: a chemical approach for type II isobaric overlap

Dmytro S. Kulyk, Glib V. Baryshnikov, Purva S. Damale, Simon Maher and Abraham K. Badu-Tawiah\*

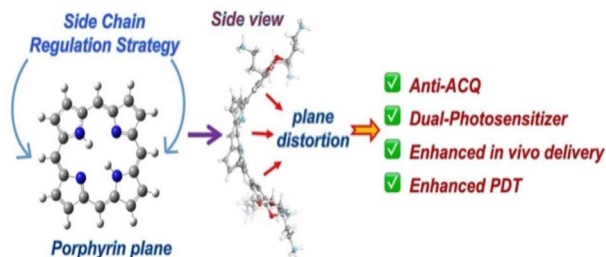
923



### Designing solvent systems using self-evolving solubility databases and graph neural networks

Yeonjoon Kim, Hojin Jung, Sabari Kumar, Robert S. Paton and Seonah Kim\*

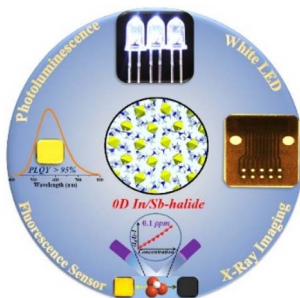
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### Suppressing ACQ of molecular photosensitizers by distorting the conjugated-plane for enhanced tumor photodynamic therapy

Han Sun, Lukun Li, Ruihua Guo, Zhe Wang,\* Yanhui Guo, Zhiliang Li\* and Fengling Song\*

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### A 0D hybrid lead-free halide with near-unity photoluminescence quantum yield toward multifunctional optoelectronic applications

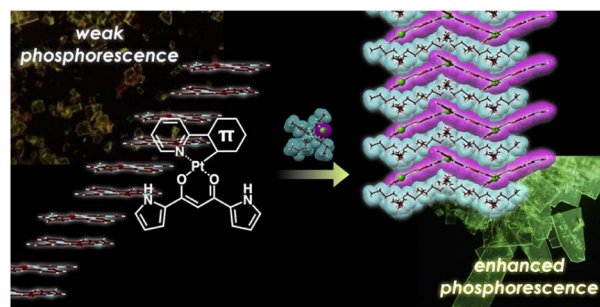
Dong-Yang Li, Huai-Yuan Kang, Yu-Hang Liu, Jie Zhang, Cheng-Yang Yue, Dongpeng Yan\* and Xiao-Wu Lei\*



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### Enhanced solid-state phosphorescence of organoplatinum $\pi$ -systems by ion-pairing assembly

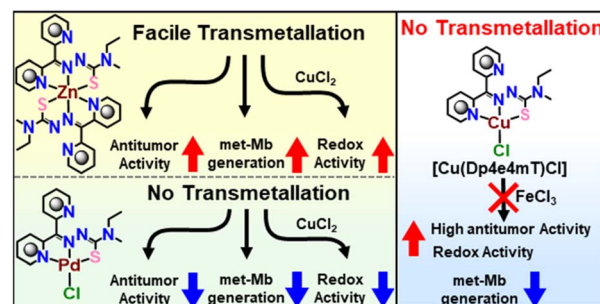
Yohei Haketa, Kaifu Komatsu, Hiroi Sei, Hiroki Imoba, Wataru Ota, Tohru Sato, Yu Murakami, Hiroki Tanaka, Nobuhiro Yasuda, Norimitsu Tohnai and Hiromitsu Maeda\*



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### Differential transmetalation of complexes of the anti-cancer thiosemicarbazone, Dp4e4mT: effects on anti-proliferative efficacy, redox activity, oxy-myoglobin and oxy-hemoglobin oxidation

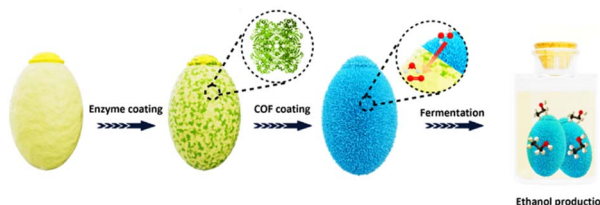
Mahendiran Dharmasivam,\* Busra Kaya, Tharushi P. Wijesinghe, Vera Richardson, Jeffrey R. Harmer, Miguel A. Gonzalez, William Lewis, Mahan Gholam Azad, Paul V. Bernhardt and Des R. Richardson\*



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### Covalent-organic framework nanobionics for robust cytoprotection

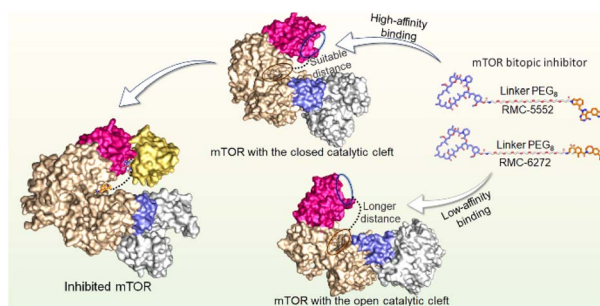
Jieying Liang,\* Qianfan Chen, Joel Yong, Hiroki Suyama, Joanna Biazik, Bosiljka Njegic, Aditya Rawal and Kang Liang\*



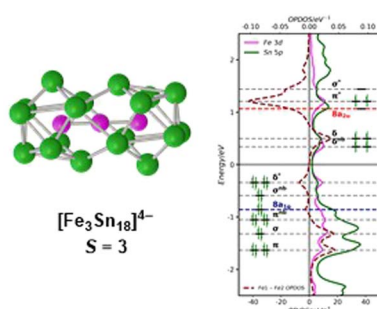
1003

### The allosteric mechanism of mTOR activation can inform bitopic inhibitor optimization

Yonglan Liu, Mingzhen Zhang, Hyunbum Jang and Ruth Nussinov\*



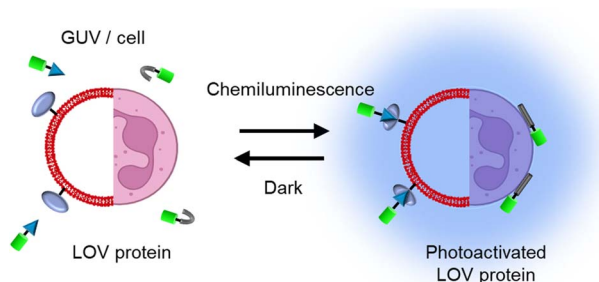
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### Snap-shots of cluster growth: structure and properties of a Zintl ion with an $\text{Fe}_3$ core, $[\text{Fe}_3\text{Sn}_{18}]^{4-}$

Zi-Sheng Li, Wei-Xing Chen, Harry W. T. Morgan, Cong-Cong Shu, John E. McGrady\* and Zhong-Ming Sun\*

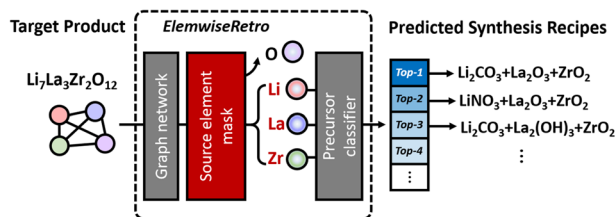
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### Photoactivation of LOV domains with chemiluminescence

Yuhao Ji, Ali Heidari, Brice Nzigou Mombo and Seraphine V. Wegner\*

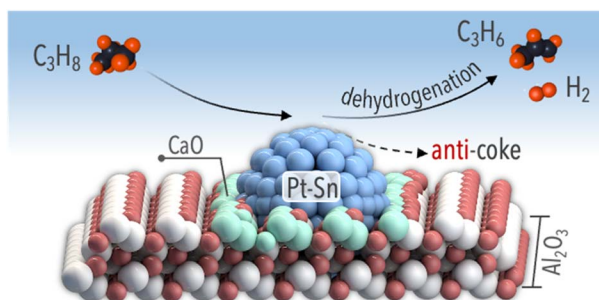
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### Predicting synthesis recipes of inorganic crystal materials using elementwise template formulation

Seongmin Kim, Juhwan Noh, Geun Ho Gu, Shuan Chen and Yousung Jung\*

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### Alkaline-earth ion stabilized sub-nano-platinum tin clusters for propane dehydrogenation

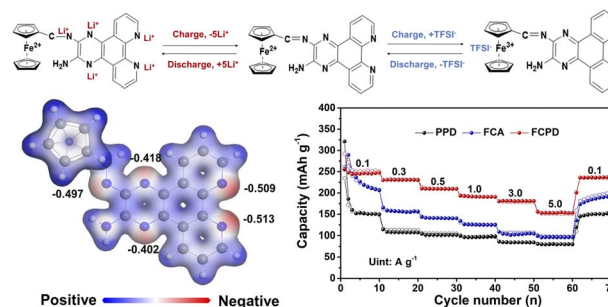
Zhenpu Lu, Ran Luo, Sai Chen, Donglong Fu, Guodong Sun, Zhi-Jian Zhao, Chunlei Pei\* and Jinlong Gong\*



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### Design of a bipolar organic small-molecule cathode with mesoporous nanospheres structure for long lifespan and high-rate Li-storage performance

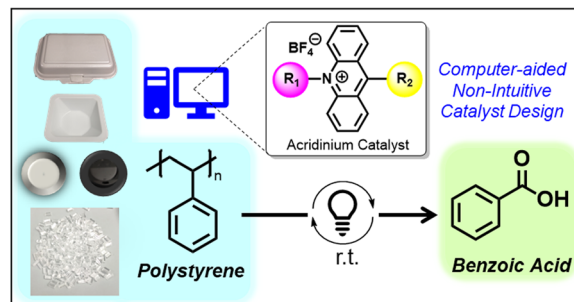
Simin Wang, Qifei Guo, Haoran Liu, Longhai Zhang, Chaofeng Zhang, Tengfei Zhou, Quanwei Ma, Hongbao Li,\* Rui Wang and Yang Zheng\*



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### Enhancing the photocatalytic upcycling of polystyrene to benzoic acid: a combined computational-experimental approach for acridinium catalyst design

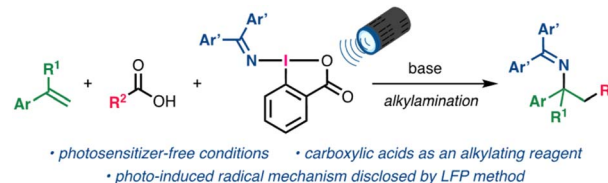
Albert Ong, Zi Cheng Wong, Kang Le Osmund Chin, Wei Wei Loh, Ming Hui Chua,\* Shi Jun Ang\* and Jason Y. C. Lim\*



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### Photoexcitation of (diarylmethylene)amino benziodoxolones for alkylation of styrene derivatives with carboxylic acids

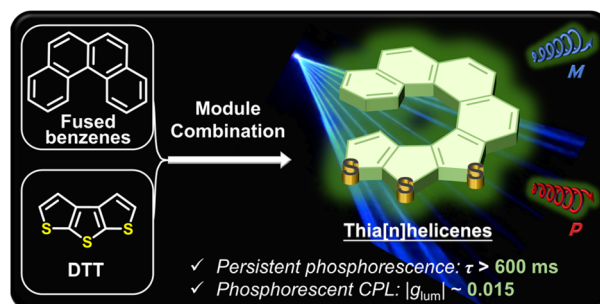
Daichi Okumatsu, Kensuke Kiyokawa,\* Linh Tran Bao Nguyen, Manabu Abe\* and Satoshi Minakata\*



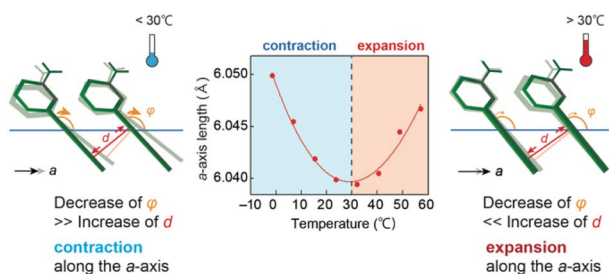
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### Thia[n]helicenes with long persistent phosphorescence

Zhen Sun, Wan Xu, Shuai Qiu, Zhiying Ma, Chunli Li, Sheng Zhang\* and Hua Wang\*



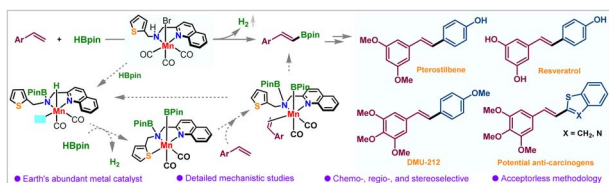
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### Negative to positive axial thermal expansion switching of an organic crystal: contribution to multistep photoactuation

Shodai Hasebe, Yuki Hagiwara, Takashi Ueno, Toru Asahi and Hideko Koshima\*

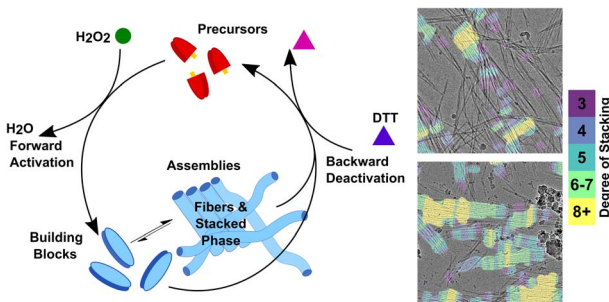
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### Catalytic acceptorless dehydrogenative borylation of styrenes enabled by a molecularly defined manganese complex

Kuhali Das, Abhishek Kundu, Koushik Sarkar, Debashis Adhikari\* and Biplab Maji\*

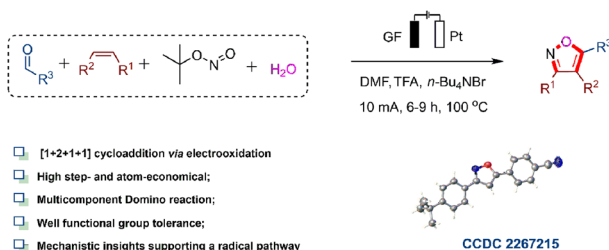
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### CryoEM reveals the complex self-assembly of a chemically driven disulfide hydrogel

Paul Joshua Hurst, Justin T. Mulvey, Rebecca A. Bone, Serxho Selmani, Redford F. Hudson, Zhibin Guan, Jason R. Green and Joseph P. Patterson\*

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### Electrochemical assembly of isoxazoles via a four-component domino reaction

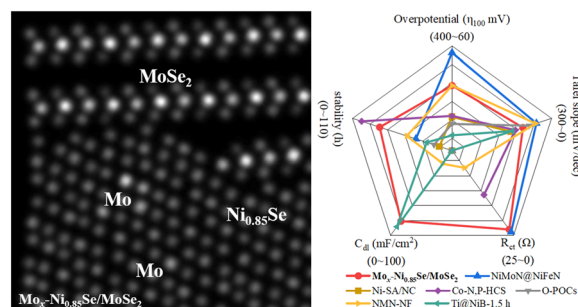
Yuanyuan Zhao, Xinyue Li, Simon L. Homölle, Bin Wang\* and Lutz Ackermann\*



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### Mo-doping heterojunction: interfacial engineering in an efficient electrocatalyst for superior simulated seawater hydrogen evolution

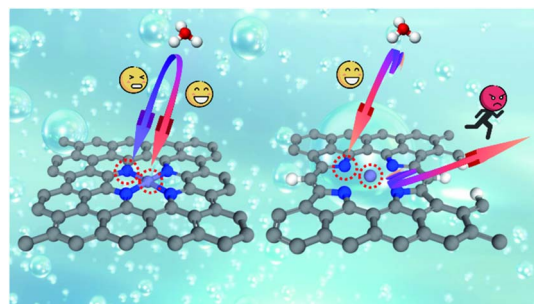
Zuo-Ming He, Chun-Xiao Zhang, Si-Qi Guo, Peng Xu, Yuan Ji, Si-Wei Luo, Xiang Qi, Yun-Dan Liu,\* Ning-Yan Cheng,\* Shi-Xue Dou, Yun-Xiao Wang\* and Bin-Wei Zhang\*



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### The role of nitrogen sources and hydrogen adsorption on the dynamic stability of Fe–N–C catalysts in oxygen reduction reaction

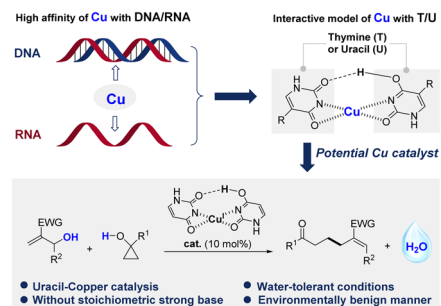
Zhou Huang, Fuhua Li, Yongduo Liu, Siguo Chen, Zidong Wei\* and Qing Tang\*



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### Uracil-Cu(I) catalyst: allylation of cyclopropanols with Morita–Baylis–Hillman alcohols under water-tolerant conditions

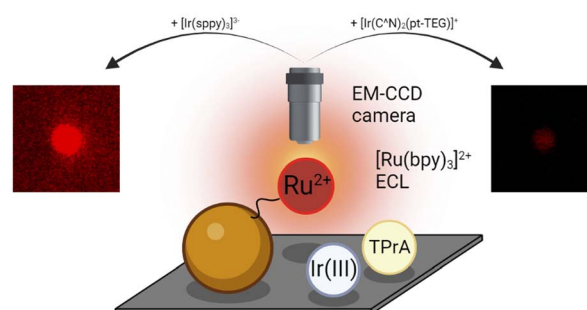
Jingwei Hou, Xiaohong Li, Kaiyu Yan, Lei Zhang,\* Teck-Peng Loh\* and Peizhong Xie\*



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### Redox-mediated electrochemiluminescence enhancement for bead-based immunoassay

Alessandro Fracassa, Claudio Ignazio Santo, Emily Kerr, Sara Knežević, David J. Hayne, Paul S. Francis, Frederic Kanoufi, Neso Sojic, Francesco Paolucci and Giovanni Valentini\*



## CORRECTIONS

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**Correction: When SF<sub>5</sub> outplays CF<sub>3</sub>: effects of pentafluorosulfanyl decorated scorpionates on copper**

Anurag Noonikara-Poyil, Alvaro Muñoz-Castro, Andrii Boretskyi, Pavel K. Mykhailiuk\* and H. V. Rasika Dias\*

1162

**Correction: Synthetic ramoplanin analogues are accessible by effective incorporation of arylglycines in solid-phase peptide synthesis**

Edward Marschall, Rachel W. Cass, Komal M. Prasad, James D. Swarbrick, Alasdair I. McKay, Jennifer A. E. Payne, Max J. Cryle\* and Julien Tailhades\*

