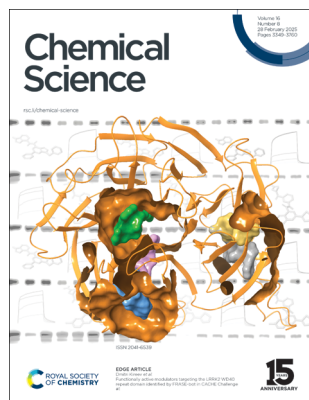
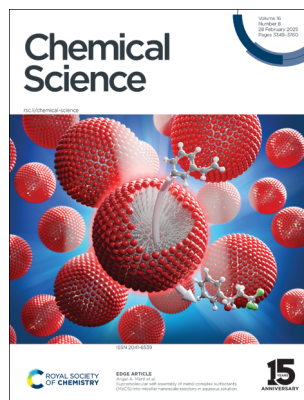


## IN THIS ISSUE

ISSN 2041-6539 CODEN CSHCBM 16(8) 3349–3760 (2025)



**Cover**  
See Dmitri Kireev *et al.*, pp. 3430–3439. Image reproduced by permission of Dmitri Kireev from *Chem. Sci.*, 2025, **16**, 3430.



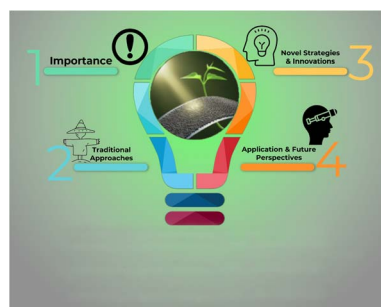
**Inside cover**  
See Angel A. Martí *et al.*, pp. 3440–3446. Image reproduced by permission of Mario Norton from *Chem. Sci.*, 2025, **16**, 3440. Image by Mario Norton, Rice University.

## REVIEWS

3362

### Advanced fabrication techniques for polymer–metal nanocomposite films: state-of-the-art innovations in energy and electronic applications

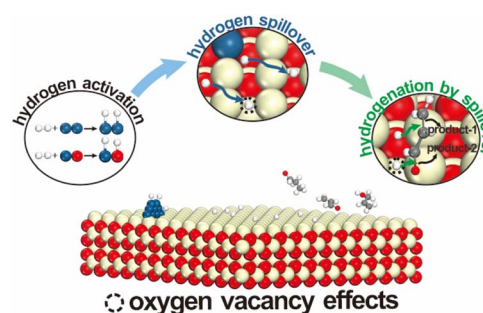
Muhammad Tayyab, Liu Zizhe, Sajid Rauf, Zixuan Xu, R. U. R. Sagar, Faisal Faiz, Zuhra Tayyab, Rashid Ur Rehman, Muhammad Imran, Anjam Waheed, Rida Javed, A. Surulinathan, Zulakha Zafar, Xian-Zhu Fu\* and Jing-Li Luo\*



3408

### Effects of oxygen vacancies on hydrogenation efficiency by spillover in catalysts

Lijuan Xie, Jinshan Liang, Lizhi Jiang\* and Wei Huang\*



# RSC Applied Interfaces

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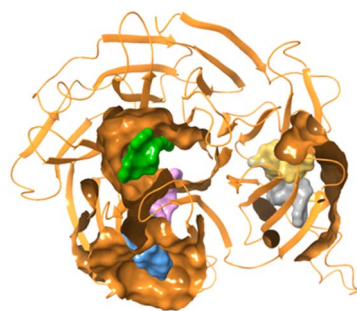
[rsc.li/RSCApplInter](https://rsc.li/RSCApplInter)

Fundamental questions  
Elemental answers

3430

### Functionally active modulators targeting the LRRK2 WD40 repeat domain identified by FRASE-bot in CACHE Challenge #1

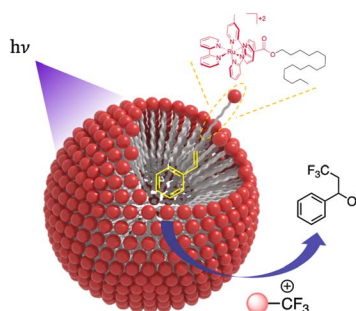
Akhila Mettu, Marta Glavatskikh, Xiaowen Wang, Antonio Jesús Lara Ordóñez, Fengling Li, Irene Chau, Suzanne Ackloo, Cheryl Arrowsmith, Albina Bolotkova, Pegah Ghiabi, Elisa Gibson, Levon Halabelian, Scott Houliston, Rachel J. Harding, Ashley Hutchinson, Peter Loppnau, Sumera Perveen, Almagul Seitova, Hong Zeng, Matthieu Schapira, Jean-Marc Taymans and Dmitri Kireev\*



3440

### Supramolecular self-assembly of metal complex surfactants (MeCS) into micellar nanoscale reactors in aqueous solution

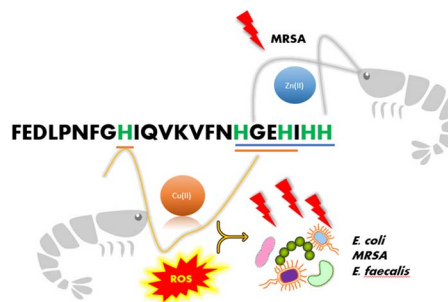
Ying Chen, Asia Matatyaho Ya'akobi, Thao Vy Nguyen, Shih-Chieh Kao, Julian G. West, Sibani Lisa Biswal, Yeshayahu Talmon and Angel A. Martí\*



3447

### Cu(II) binding to an antimicrobial shrimp peptide – a small step for structural chemistry, a big leap for medicinal applications

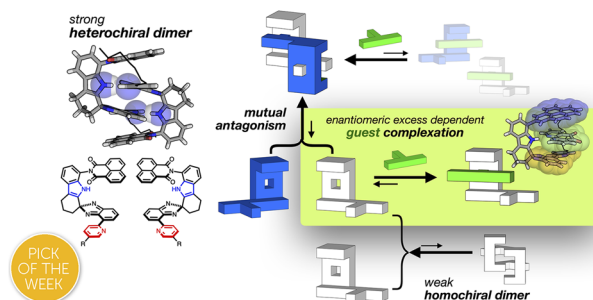
Adriana Miller, Agnieszka Matera-Witkiewicz, Aleksandra Mikołajczyk-Tarnawa, Arian Kola, Magdalena Wiloch, Martin Jonsson-Niedziolka, Robert Wieczorek, Joanna Wąty, Daniela Valensin\* and Magdalena Rowińska-Żyrek\*



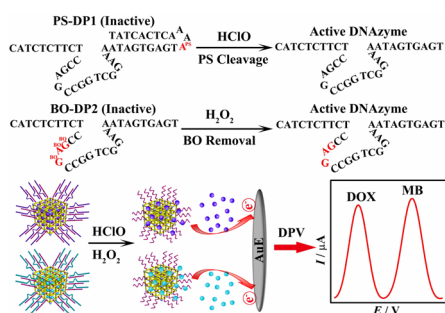
3459

### Mutually antagonistic molecular clips: symmetry-breaking non-covalent bonds at the chiral–nonchiral interface

Sungryul Bae, Younjae Jeong and Dongwhan Lee\*



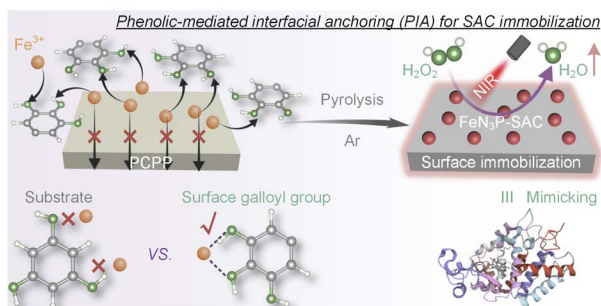
3470



### A chemically modified DNAzyme-based electrochemical sensor for binary and highly sensitive detection of reactive oxygen species

Baoting Dou, Hui Shen, Zhimin Li, Huanyu Cheng and Po Wang\*

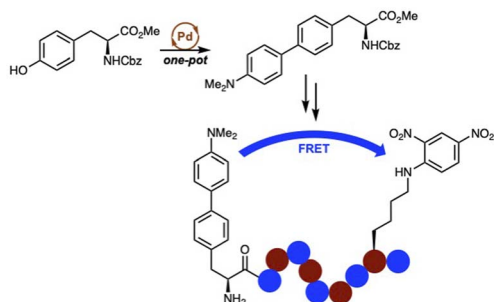
3479



### Surface immobilization of single atoms on heteroatom-doped carbon nanospheres through phenolic-mediated interfacial anchoring for highly efficient biocatalysis

Yajing Zhang, Yunxiang He, Yun Jiao, Guobin Yang, Yiran Pu, Zhangmin Wan, Shuyun Li, Yanchao Wu, Wen Liao and Junling Guo\*

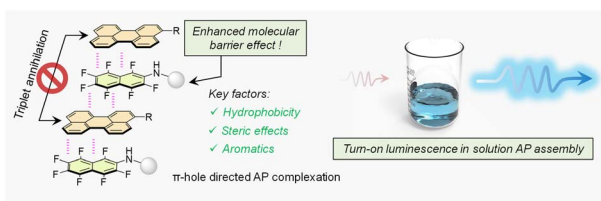
3490



### Expedient discovery of fluorogenic amino acid-based probes via one-pot palladium-catalysed arylation of tyrosine

Olivia Marshall, Rochelle McGrory, Sineenard Songsri, Andrew R. Thomson and Andrew Sutherland\*

3498



### Engineering perfluoroarenes for enhanced molecular barrier effect and chirality transfer in solutions

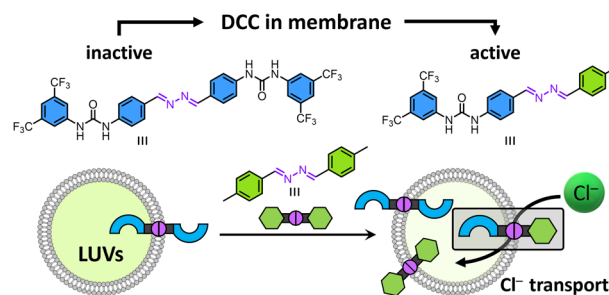
Tianhao Wang, Zeyuan Zhang, Aiyou Hao\* and Pengyao Xing\*



3509

### Controlling the transmembrane transport of chloride by dynamic covalent chemistry with azines

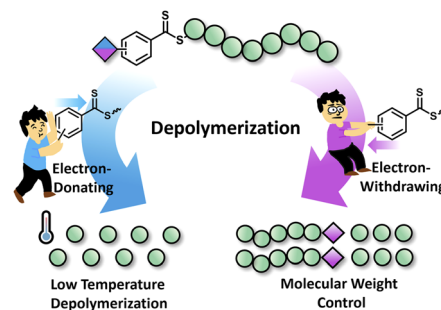
Marcin Konopka, Lau Halgreen, Anca-Elena Dascalu, Matúš Chvojka and Hennie Valkenier\*



3516

### Low temperature thermal RAFT depolymerization: the effect of Z-group substituents on molecular weight control and yield

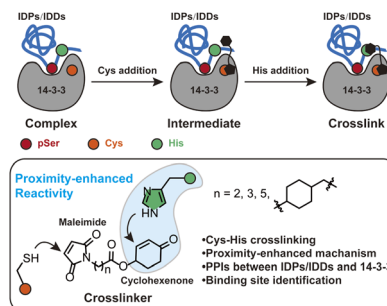
Nethmi De Alwis Watuthanthrige, Anastasiia Moskalenko, Asja A. Kroeger, Michelle L. Coote, Nghia P. Truong and Athina Anastasaki\*



3523

### Proximity-enhanced cysteine–histidine crosslinking for elucidating intrinsically disordered and other protein complexes

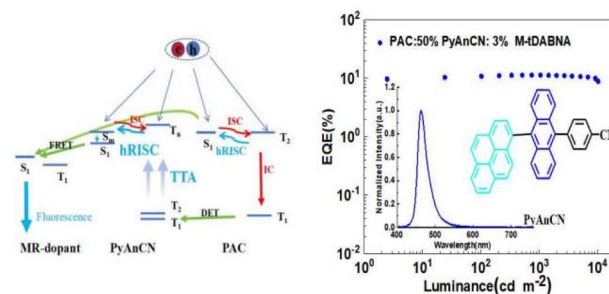
Qi Wu, Sebastian A. H. van den Wildenberg, Jeroen C. R. Brzoskowski, Maxime C. M. van den Oetelaar, Carlo J. A. Verhoef, Sylvia A. A. M. Genet, Christian Ottmann, Albert J. Markvoort, Luc Brunsveld\* and Peter J. Cossar\*



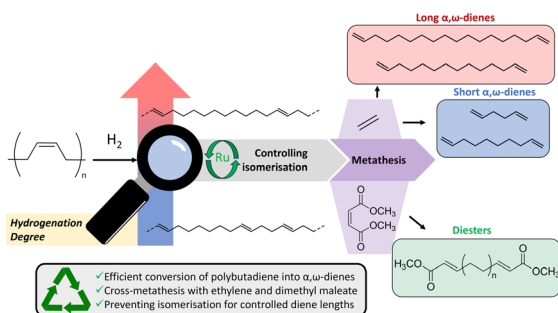
3536

### Efficient harvesting of triplet excitons via multiple fast TTA up-conversion and high-lying reverse intersystem crossing channels for efficient blue fluorescent organic light-emitting diodes

Jianwen Qin, Xianfeng Qiao,\* Shu Xiao, Dezhi Yang, Yanfeng Dai, Jiangshan Chen, Qian Sun and Dongge Ma\*



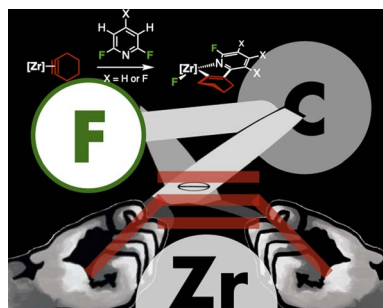
3544



### Chemical upcycling of polybutadiene into size controlled $\alpha,\omega$ -dienes and diesters *via* sequential hydrogenation and cross-metathesis

Christophe Vos, Igor Beckers, Galahad O'Rourke and Dirk De Vos\*

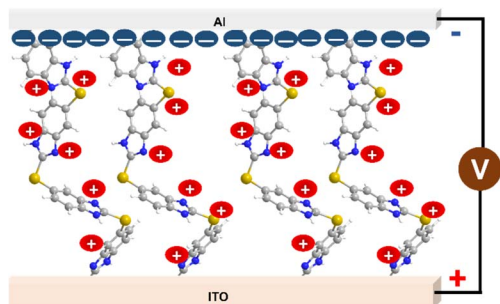
3552



### Zirconium-mediated carbon–fluorine bond functionalisation through cyclohexyne “umpolung”

Sara Bonfante, Theo F. N. Tanner, Christian Lorber,\* Jason M. Lynam,\* Antoine Simonneau\* and John M. Slattery\*

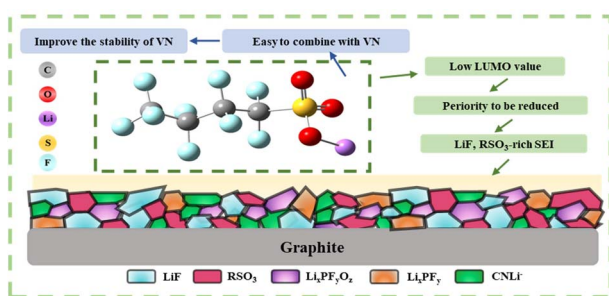
3560



### Electrochemically grafted molecular layers as on-chip energy storage molecular junctions

Rajwinder Kaur, Ankur Malik, Ritu Gupta, Kusum Kumari, Saurabh Kumar Singh, Paulo Roberto Bueno and Prakash Chandra Mondal\*

3571



### Engineering the solid electrolyte interphase for enhancing high-rate cycling and temperature adaptability of lithium-ion batteries

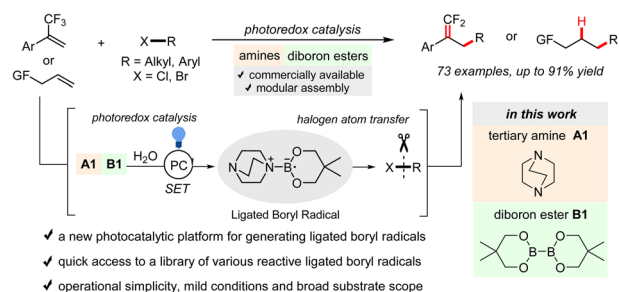
Zhongming Wang, Zhiyuan He, Zhongsheng Wang, Kecheng Long, Jixu Yang, Shaozhen Huang, Zhibin Wu, Lin Mei\* and Libao Chen\*



3580

### Modular assembly of amines and diborons with photocatalysis enabled halogen atom transfer of organohalides for C(sp<sup>3</sup>)-C(sp<sup>3</sup>) bond formation

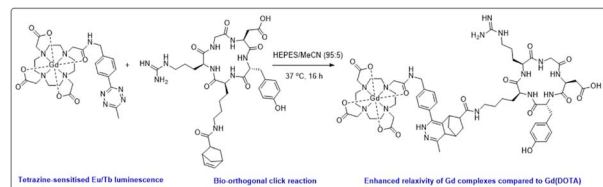
Rong-Bin Liang, Ting-Ting Miao, Xiang-Rui Li, Jia-Bo Huang, Shao-Fei Ni,\* Sanliang Li, Qing-Xiao Tong and Jian-Ji Zhong\*



3588

### Lanthanide-tetrazine probes for bio-imaging and click chemistry

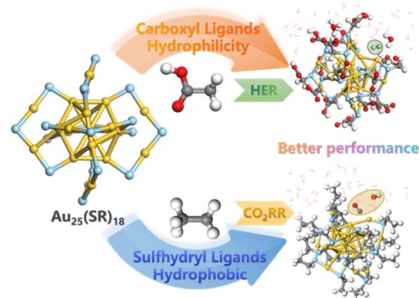
Benjamin Woolley, Yue Wu, Li Xiong, Ho-Fai Chau, Junhui Zhang, Ga-Lai Law,\* Ka-Leung Wong\* and Nicholas J. Long\*



3598

### Ligand-induced changes in the electrocatalytic activity of atomically precise Au<sub>25</sub> nanoclusters

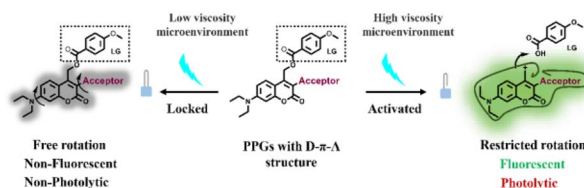
Lipan Luo, Xia Zhou, Yuping Chen, Fang Sun, Likai Wang\* and Qing Tang\*



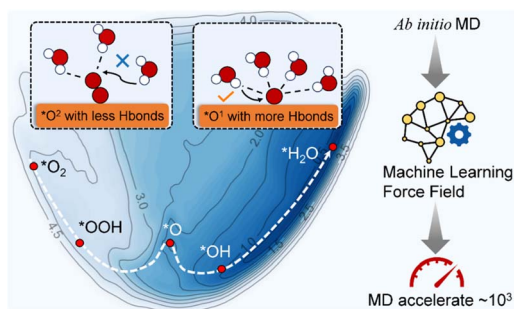
3611

### Precise photorelease in living cells by high-viscosity activatable coumarin-based photocages

Xinyi Huang, Yajie Shi, Li Jiang,\* Wanqi Chen, Bingkun Bao, Tuan Liu, Qinghai Zhou, Jiaxin Li, Qiuning Lin\* and Linyong Zhu



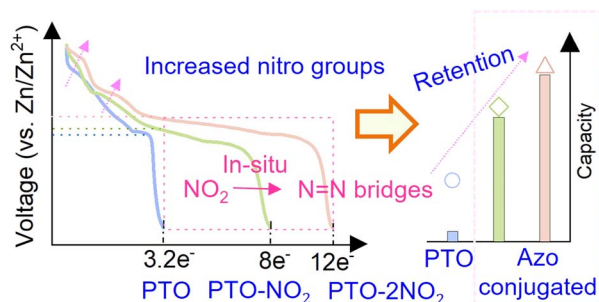
3620



### Dynamics and kinetics exploration of the oxygen reduction reaction at the Fe-N<sub>4</sub>/C-water interface accelerated by a machine learning force field

Qinghan Yu, Pai Li,\* Xing Ni, Youyong Li and Lu Wang\*

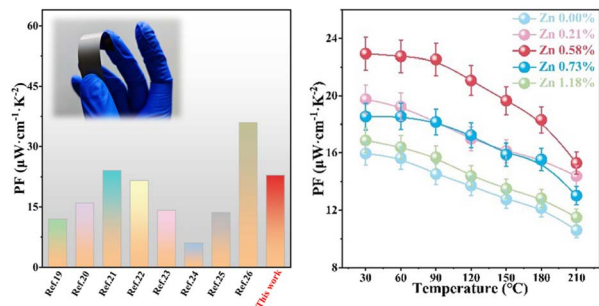
3630



### Enhancing organic cathodes of aqueous zinc-ion batteries via nitro group modification

Donghong Wang,\* Mengxuan Qin, Changyou Zhang, Mengxue Li, Chao Peng, Chunyi Zhi,\* Qing Li and Lei Zhu\*

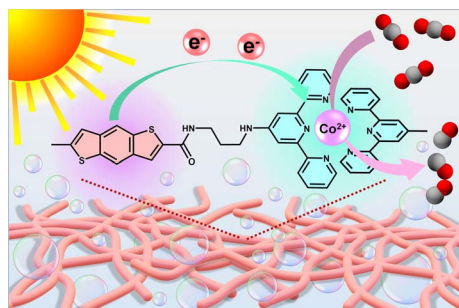
3638



### A Zn-doped Sb<sub>2</sub>Te<sub>3</sub> flexible thin film with decoupled Seebeck coefficient and electrical conductivity via band engineering

Zi-long Zhang, Wen-yu Yang, Bo Wu, Mohammad Nisar, Fu Li, Guang-xing Liang, Jing-ting Luo, Yue-xing Chen and Zhuang-hao Zheng\*

3646



### Co<sup>II</sup>-organic 'soft' metallo-supramolecular polymer nanofibers for efficient photoreduction of CO<sub>2</sub>

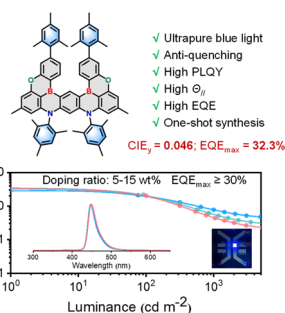
Souvik Mondal, Faruk Ahamed Rahimi, Tarak Nath Das, Sukhendu Nath and Tapas Kumar Maji\*



3655

### A mesityl-functionalized double-boron–nitrogen–oxygen-embedded multi-resonance framework achieves anti-quenching narrowband deep-blue electroluminescence with EQE over 30% and CIE<sub>y</sub> of 0.046

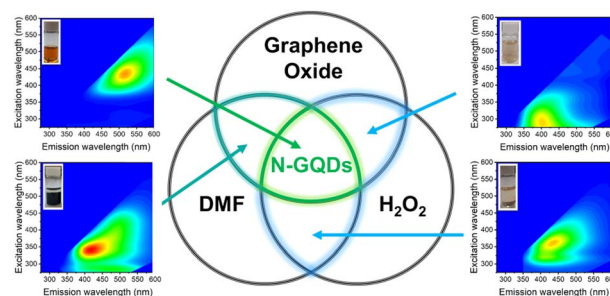
Zhuixing Xue, Zhengqi Xiao, Yang Zou, Zhanxiang Chen, Jiahui Liu, Zhongyan Huang\* and Chuluo Yang\*



3662

### Multifaceted role of H<sub>2</sub>O<sub>2</sub> in the solvothermal synthesis of green-emitting nitrogen-doped graphene quantum dots

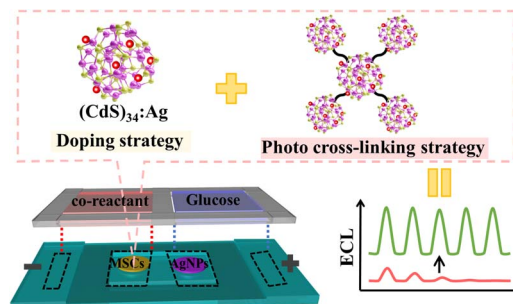
Clara Carrera, Alejandro Galán-González, Wolfgang K. Maser and Ana M. Benito\*



3671

### Photo-crosslinking of doped magic-sized nanoclusters for the construction of enhanced electrochemiluminescence biosensors

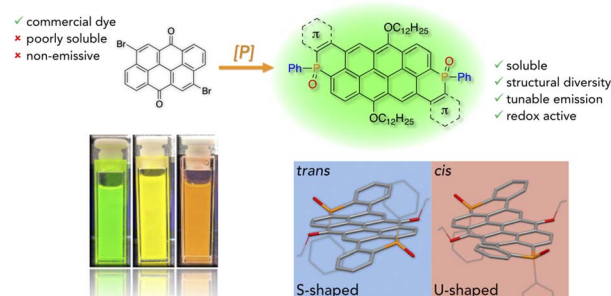
Junjun Ge, Tengyue Yin, Haoyang Zhang, Yue Cao, Juan Liu, Jun-Jie Zhu, Yang Zhou\* and Yuanyuan Wang\*



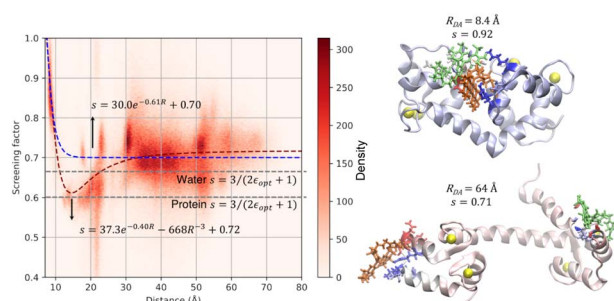
3680

### From flat to twisted – multifunctional phosphacyclic nanocarbons based on Vat Orange 3

Reza Dadgaryeganeh, Jesse LeBlanc, Ekadashi Pradhan, Dandan Miao, Amaar Hussein, Howard N. Hunter, Tao Zeng,\* Carlos Romero-Nieto\* and Thomas Baumgartner\*



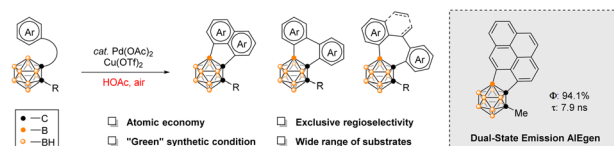
3693



### On the breakdown of Förster energy transfer theory due to solvent effects: atomistic simulations unveil distance-dependent dielectric screening in calmodulin

Daniel Gonzalo, Lorenzo Cupellini and Carles Curutchet\*

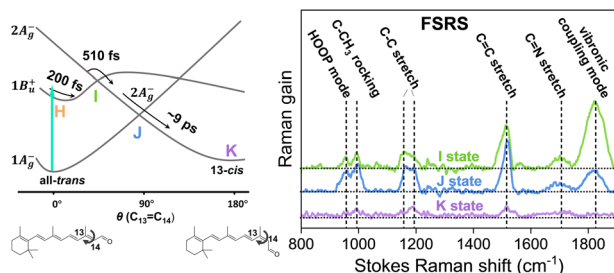
3705



### Palladium-catalyzed intramolecular aerobic oxidative cross-coupling of BH/CH between *o*-carborane and arenes

Zhen Wang, Jiahui Yu, Jie Zhang, Dongsong Zhang, Zaozao Qiu\* and Zuowei Xie\*

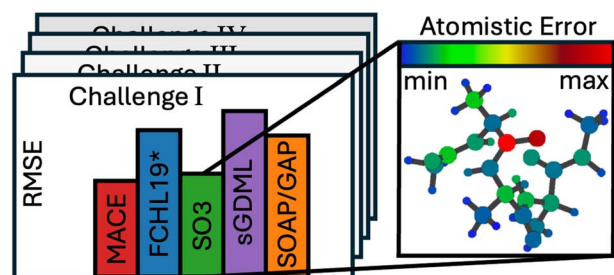
3713



### Mapping photoisomerization dynamics on a three-state model potential energy surface in bacteriorhodopsin using femtosecond stimulated Raman spectroscopy

Ziyu Wang, Yu Chen, Jiaming Jiang, Xin Zhao and Weimin Liu\*

3720



### Crash testing machine learning force fields for molecules, materials, and interfaces: model analysis in the TEA Challenge 2023

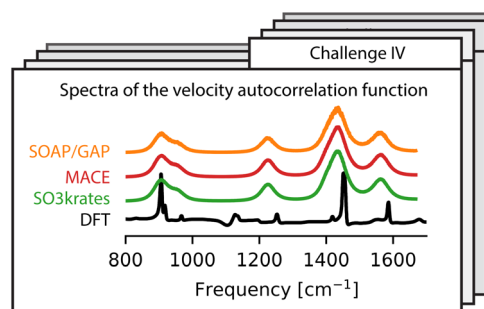
Igor Poltavsky,\* Anton Charkin-Gorbunin, Mirela Puleva, Grégory Fonseca, Ilyes Batatia, Nicholas J. Browning, Stefan Chmiela, Mengnan Cui, J. Thorben Frank, Stefan Heinen, Bing Huang, Silvan Käser, Adil Kabylda, Danish Khan, Carolin Müller, Alastair J. A. Price, Kai Riedmiller, Kai Töpfer, Tsz Wai Ko, Markus Meuwly, Matthias Rupp, Gábor Csányi, O. Anatole von Lilienfeld, Johannes T. Margraf, Klaus-Robert Müller and Alexandre Tkatchenko\*



3738

### Crash testing machine learning force fields for molecules, materials, and interfaces: molecular dynamics in the TEA challenge 2023

Igor Poltavsky,\* Mirela Puleva, Anton Charkin-Gorbunin, Grégory Fonseca, Ilyes Batatia, Nicholas J. Browning, Stefan Chmiela, Mengnan Cui, J. Thorben Frank, Stefan Heinen, Bing Huang, Silvan Käser, Adil Kabylda, Danish Khan, Carolin Müller, Alastair J. A. Price, Kai Riedmiller, Kai Töpfer, Tsz Wai Ko, Markus Meuwly, Matthias Rupp, Gábor Csányi, O. Anatole von Lilienfeld, Johannes T. Margraf, Klaus-Robert Müller and Alexandre Tkatchenko\*



## COMMENT

3755

### Comment on "Discovery of a polyketide carboxylate phytotoxin from a polyketide glycoside hybrid by $\beta$ -glucosidase mediated ester bond hydrolysis" by X. Wang, D.-K. Kong, H.-R. Zhang, Y. Zou, *Chem. Sci.*, 2024, 15, 17183

Seyed Amirhossein Nasser, Rajneesh K. Bains, Yuqing Tian and Stephen G. Withers

