

# Chemical Science

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ISSN 2041-6539 CODEN CSHCBM 14(24) 6479–6808 (2023)



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See Raúl García-Rodríguez et al., pp. 6522–6530.  
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### Inside cover

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Sara Linse and Tuomas Knowles



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### Progress in the chemistry of molecular actinide-nitride compounds

Megan Keener, Leonor Maria and Marinella Mazzanti\*



# Chemical Science

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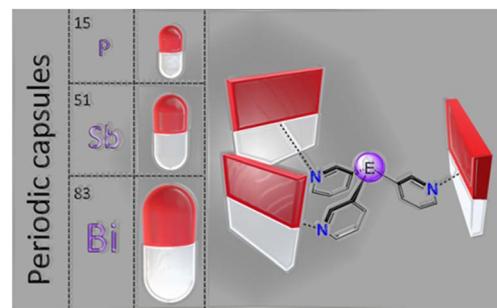
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## EDGE ARTICLES

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**Structural and dimensional control of porphyrin capsules using Group 15 tris(3-pyridyl) linkers**

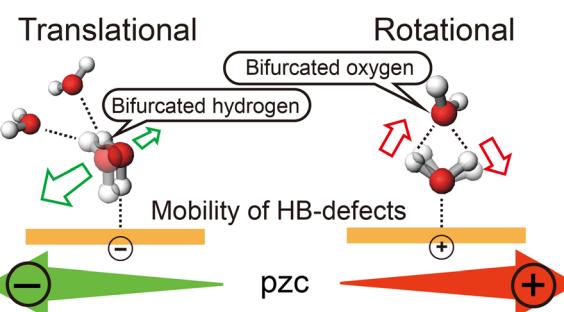
Álvaro García-Romero, Daniel Miguel, Dominic S. Wright, Celedonio M. Álvarez and Raúl García-Rodríguez\*



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**Probing collective terahertz vibrations of a hydrogen-bonded water network at buried electrochemical interfaces**

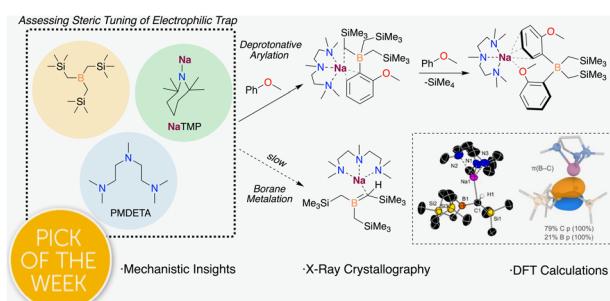
Taichi Isogai, Masayuki Uranagase, Kenta Motobayashi, Shuji Ogata and Katsuyoshi Ikeda\*



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**Sodium mediated deprotonative borylation of arenes using sterically demanding  $B(CH_2SiMe_3)_3$ : unlocking polybasic behaviour and competing lateral borane sodiation**

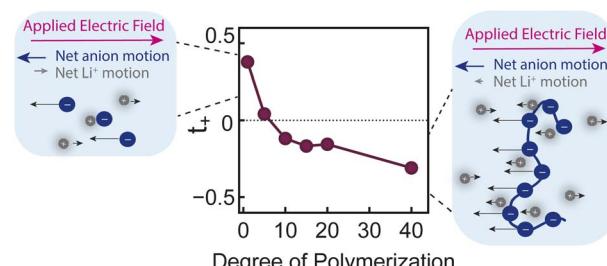
Andreu Tortajada, Leonie J. Bole, Manting Mu, Martin Stanford, Marconi N. Peñas-Defrutos, Max García-Melchor\* and Eva Hevia\*



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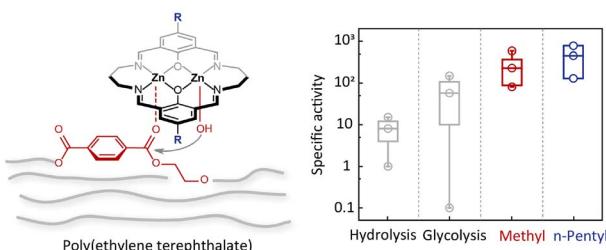
**Ion correlation and negative lithium transference in polyelectrolyte solutions**

Helen K. Bergstrom,\* Kara D. Fong, David M. Halat, Carl A. Karouta, Hasan C. Celik, Jeffrey A. Reimer and Bryan D. McCloskey\*



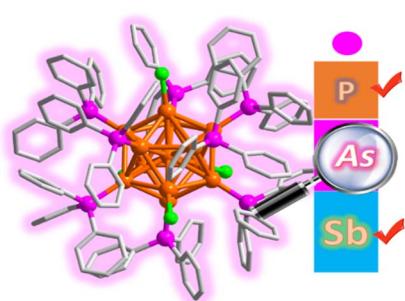
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**PET recycling under mild conditions *via* substituent-modulated intramolecular hydrolysis**

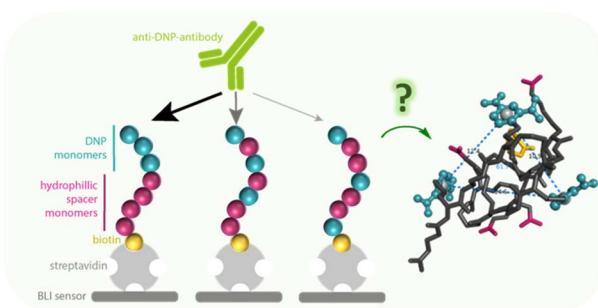
Shengbo Zhang, Yingying Xue, Yanfen Wu, Yu-Xiao Zhang, Ting Tan\* and Zhiqiang Niu\*

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**Monoarsine-protected icosahedral cluster  $[Au_{13}(AsPh_3)_8Cl_4]^+$ : comparative studies on ligand effect and surface reactivity with its stibine analogue**

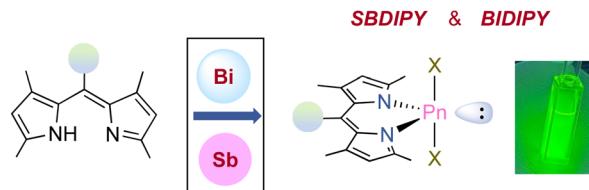
Jiu-Hong Yu, Zhi-Rui Yuan, Jing Xu, Jin-Gui Wang, Mohammad Azam, Tian-Duo Li, Ying-Zhou Li\* and Di Sun\*

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**Sequence-defined antibody-recruiting macromolecules**

Resat Aksakal, Corentin Tonneaux, Annemiek Uvyn, Mathieu Fossépré, Hatice Turgut, Nezha Badi,\* Mathieu Surin,\* Bruno G. De Geest\* and Filip. E. Du Prez\*

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Exploring the effect of heavy pnictogens

- Multiple geometries available
- Different photoluminescence features

**Replacing the BO in BODIPY: unlocking the path to SBDIPY and BIDIPY chromophores**

André Korzun, Stefano Crespi, Christopher Golz and Alessandro Bismuto\*

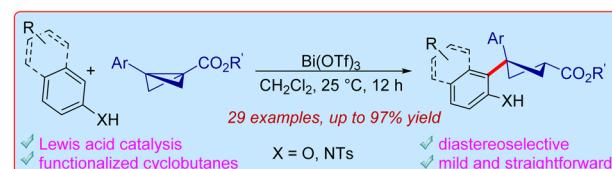


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**Lewis acid-catalyzed diastereoselective carbofunctionalization of bicyclobutanes employing naphthols**

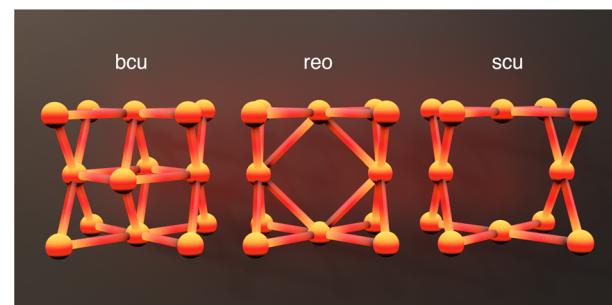
Avishek Guin, Subrata Bhattacharjee,  
Mahesh Singh Harariya and Akkattu T. Biju\*



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**Correlated missing linker defects increase thermal conductivity in metal–organic framework UiO-66**

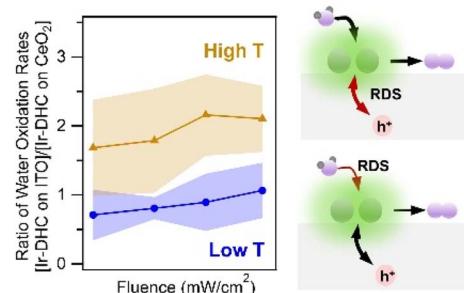
Meiirbek Islamov, Paul Boone, Hasan Babaei,  
Alan J. H. McGaughey and Christopher E. Wilmer\*



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**Atomically dispersed Ir catalysts exhibit support-dependent water oxidation kinetics during photocatalysis**

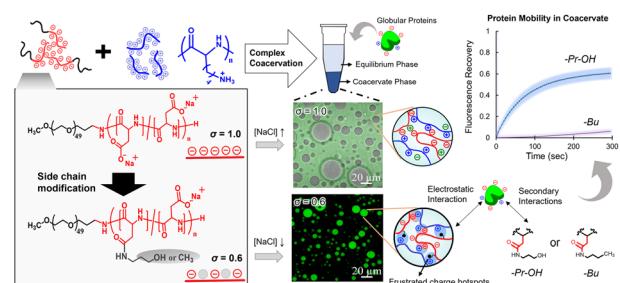
Hongna Zhang, Tianying Liu, Nicholas Dulock,  
Benjamin P. Williams, Yuanxing Wang, Boqiang Chen,  
Haden Wikar, David Z. Wang, Gary W. Brudvig,  
Dunwei Wang\* and Matthias M. Waegle\*



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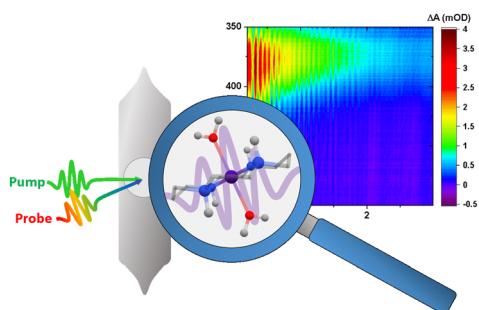
**Dynamic frustrated charge hotspots created by charge density modulation sequester globular proteins into complex coacervates**

Biplab K C, Teruki Nii, Takeshi Mori, Yoshiaki Katayama  
and Akihiro Kishimura\*



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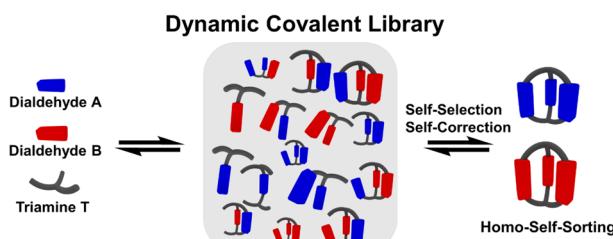


# Equatorial restriction of the photoinduced Jahn–Teller switch in Mn(III)-cyclam complexes

Ryan Phelps, Alvaro Etcheverry-Berrios, Euan K. Brechin  
and J. Olof Johansson\*

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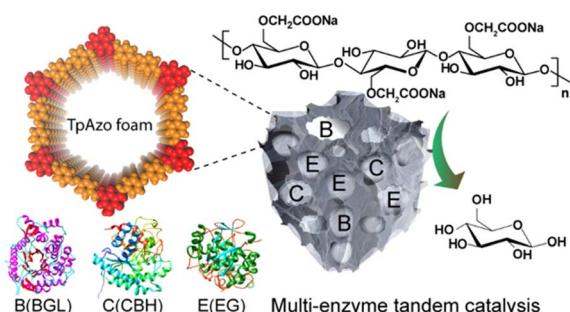
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# Dynamic covalent self-assembly and self-sorting processes in the formation of imine-based macrocycles and macrobicyclic cages

Zhaozheng Yang, Ferran Esteve, Cyril Antheaume  
and Jean-Marie Lehn\*

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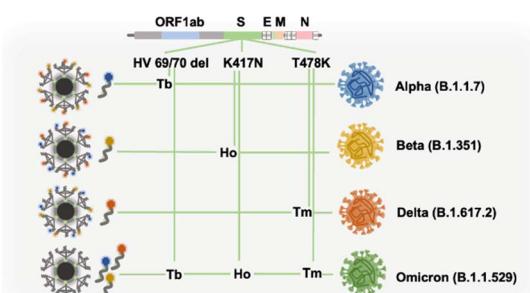


# Hierarchical covalent organic framework-foam for multi-enzyme tandem catalysis

Satyadip Paul, Mani Gupta, Kaushik Dey,  
Ashok Kumar Mahato, Saikat Bag, Arun Torris,  
E. Bhoje Gowd, Hasnain Sajid, Matthew A. Addicoat,  
Supratim Datta\* and Rahul Banerjee\*

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# Isotope-encoded tetrahedral DNA for multiple SARS-CoV-2 variant diagnosis

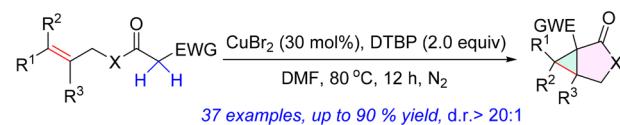
Ziyan Li, Jing Zhou, Chaoqun Wang, Rui Liu,\* Jianyu Hu  
and Yi Ly\*

## EDGE ARTICLES

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**Cu(II)-mediated direct intramolecular cyclopropanation of distal olefinic acetate: access to cyclopropane-fused  $\gamma$ -lactones**

Yulong Wang, Shenyu Shen, Chonglong He,  
Youkang Zhou, Keyuan Zhang, Bin Rao, Tian Han,  
Yaqiong Su, Xin-Hua Duan and Le Liu\*

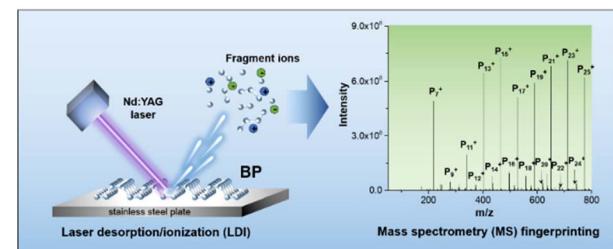


- High Atom- and Step-Economy
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**Molecular-level degradation pathways of black phosphorus revealed by mass spectrometry fingerprinting**

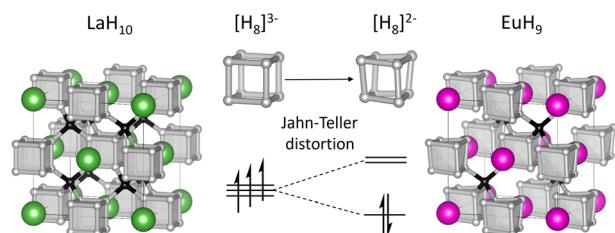
Xiu Huang, Yong Li, Guangbo Qu, Xue-Feng Yu,  
Dong Cao, Qian Liu\* and Guibin Jiang



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**Structures of LaH<sub>10</sub>, EuH<sub>9</sub>, and UH<sub>8</sub> superhydrides rationalized by electron counting and Jahn-Teller distortions in a covalent cluster model**

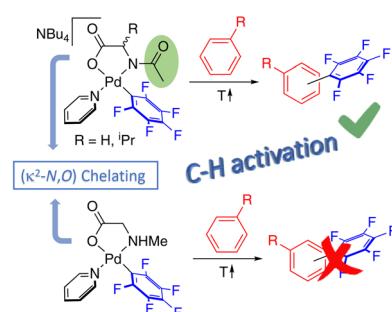
Harry W. T. Morgan\* and Anastassia N. Alexandrova



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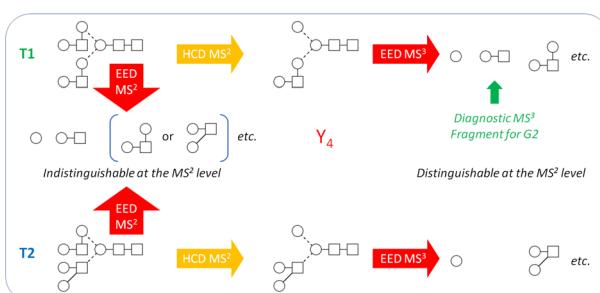
**Palladium mono-*N*-protected amino acid complexes: experimental validation of the ligand cooperation model in C–H activation**

Sara Fernández-Moyano, Vanesa Salamanca and  
Ana C. Albéniz\*



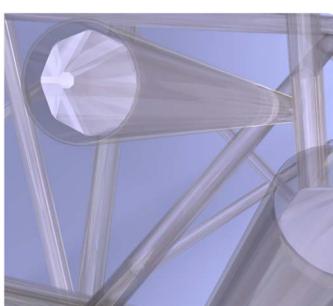
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**De novo glycan sequencing by electronic excitation dissociation MS<sup>2</sup>-guided MS<sup>3</sup> analysis on an Omnitrap-Orbitrap hybrid instrument**

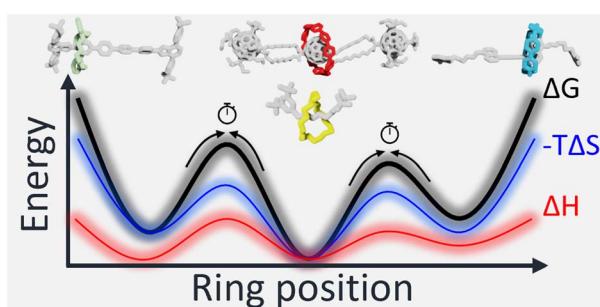
Juan Wei,\* Dimitris Papanastasiou, Mariangela Kosmopoulou, Athanasios Smyrnakis, Pengyu Hong, Nafisa Tursumamat, Joshua A. Klein, Chaoshuang Xia, Yang Tang, Joseph Zaia, Catherine E. Costello and Cheng Lin\*

6705

**Electron transparent nanotubes reveal crystallization pathways in confinement**

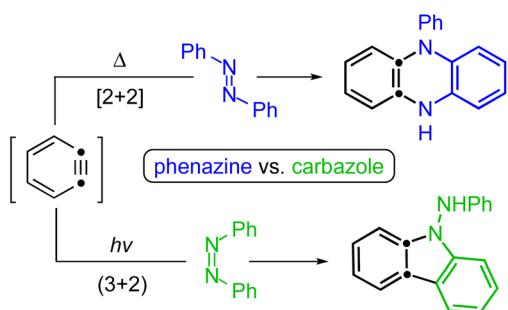
Johanna M. Galloway, Zabeeda P. Aslam, Stephen R. Yeandel, Alexander Kulak, Martha A. Ilett, Yi-Yeoun Kim, Angela Bejarano-Villafuerte, Boaz Pokroy, Rik M. Drummond-Brydson, Colin L. Freeman, John H. Harding, Nikil Kapur and Fiona C. Meldrum\*

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**Into the dynamics of rotaxanes at atomistic resolution**

Luigi Leanza, Claudio Perego, Luca Pesce, Matteo Salvalaglio, Max von Delius and Giovanni M. Pavan\*

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**The contrasting reactivity of *trans*- vs. *cis*-azobenzenes (ArN=NAr) with benzenes**

Dorian S. Sneddon and Thomas R. Hoye\*

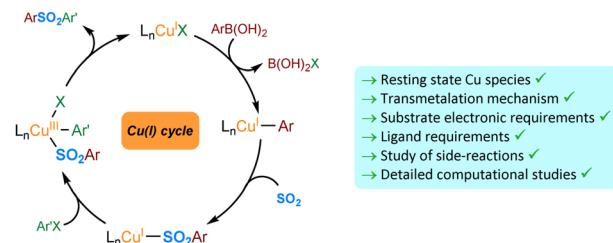


## EDGE ARTICLES

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## Experimental and computational insights into the mechanism of the copper(I)-catalysed sulfonylative Suzuki–Miyaura reaction

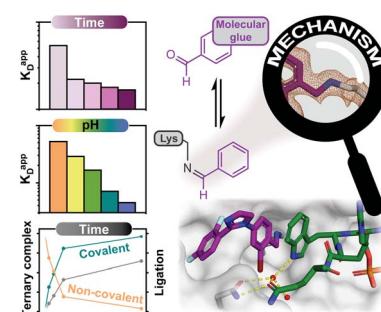
Callum G. J. Hall, Helen F. Sneddon,\* Peter Pogány,  
David M. Lindsay and William J. Kerr\*



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## Tracking the mechanism of covalent molecular glue stabilization using native mass spectrometry

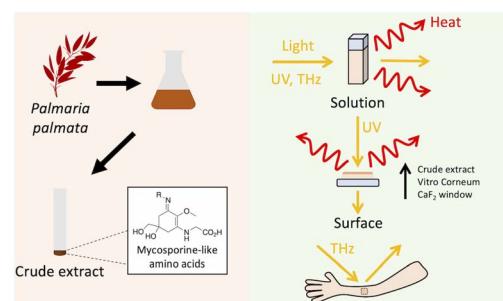
Carlo J. A. Verhoef, Danielle F. Kay, Lars van Dijck,  
Richard G. Doveston, Luc Brunsved, Aneika C. Leney\*  
and Peter J. Cossar\*



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## Spectroscopic insight on impact of environment on natural photoprotectants

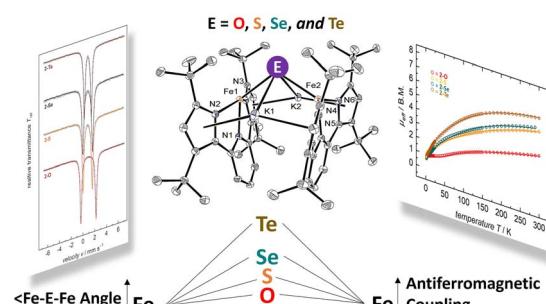
Abigail L. Whittock, Xuefei Ding, Xavier E. Ramirez Barker,  
Nazia Auckloo, Rebecca A. Sellers, Jack M. Woolley,  
Krishnan Tamareeselvy, Marine Vincendet,  
Christophe Corre, Emma Pickwell-MacPherson  
and Vasilios G. Stavros\*



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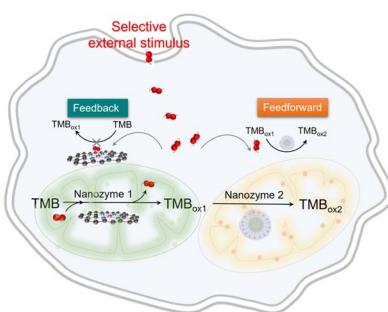
## Isostructural bridging diferrous chalcogenide cores $[\text{Fe}^{\text{II}}(\mu\text{-E})\text{Fe}^{\text{II}}]$ (E = O, S, Se, Te) with decreasing antiferromagnetic coupling down the chalcogenide series

Ethan Zars, Lisa Gravogl, Michael R. Gau, Patrick J. Carroll,  
Karsten Meyer\* and Daniel J. Mindiola\*



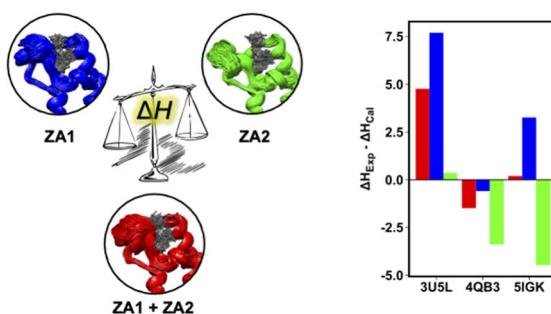
## EDGE ARTICLES

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**Cascade nanozymatic network mimicking cells with selective and linear perception of  $\text{H}_2\text{O}_2$** 

Caixia Zhu, Zhixin Zhou, Xuejiao J. Gao, Yanhong Tao, Xuwen Cao, Yuan Xu, Yanfei Shen, Songqin Liu and Yuanjian Zhang\*

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**The role of loop dynamics in the prediction of ligand–protein binding enthalpy**

Süleyman Selim Çınaroğlu and Philip C. Biggin\*

## CORRECTION

6806

**Correction: Radical ring-opening polymerization of sustainably-derived thionoisochromanone**

Emily A. Prebihalo, Anna M. Luke, Yernaidu Reddi, Christopher J. LaSalle, Vijay M. Shah, Christopher J. Cramer and Theresa M. Reineke\*

