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## IN THIS ISSUE

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**Cover**
See F. Ricci *et al.*, pp. 3692–3696.
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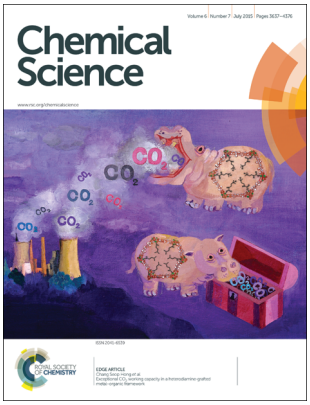


**Inside cover**
See Chang Seop Hong *et al.*, pp. 3697–3705.
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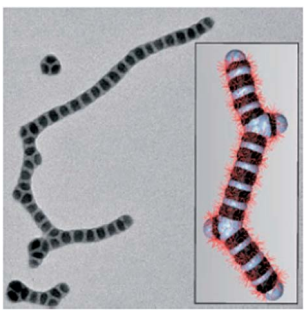
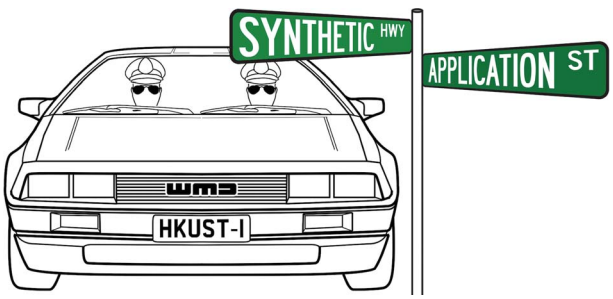
## PERSPECTIVES







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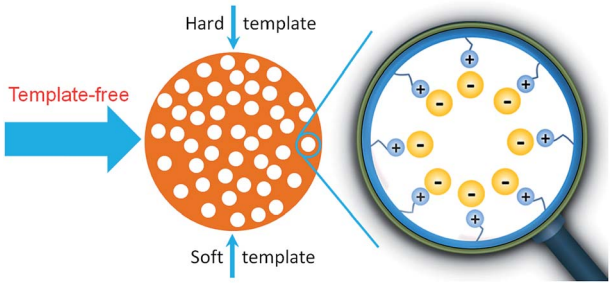
## MINIREVIEW



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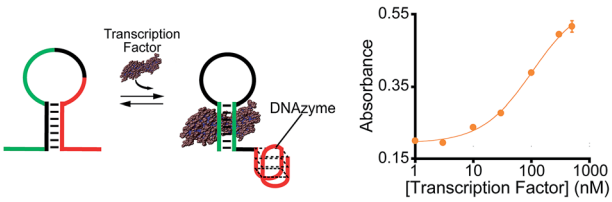




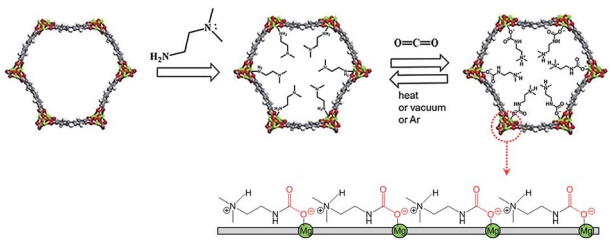




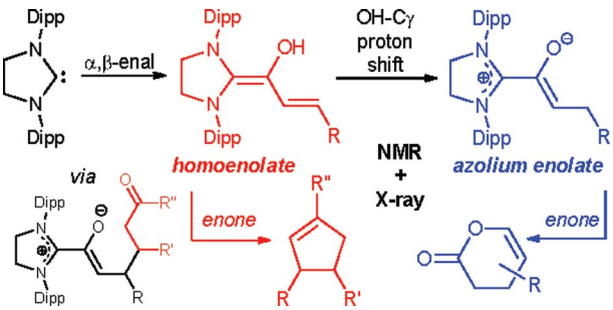

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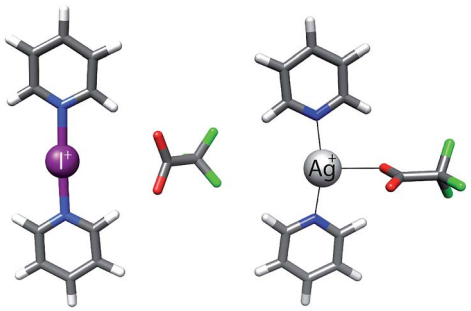




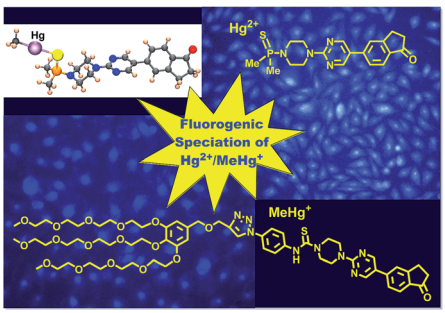




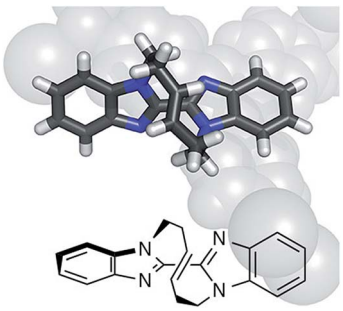



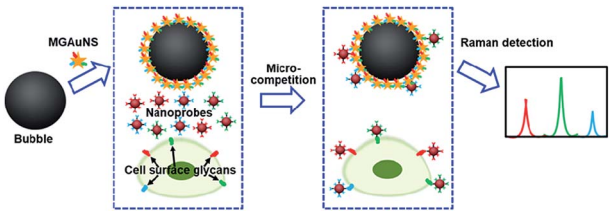

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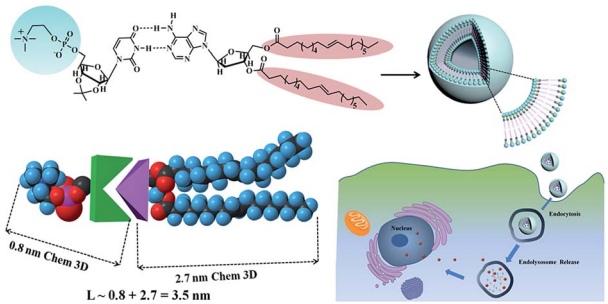
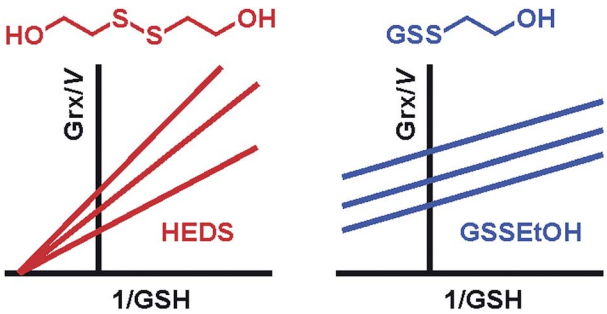



### Supramolecularly engineered phospholipids constructed by nucleobase molecular recognition: upgraded generation of phospholipids for drug delivery

Dali Wang, Chunlai Tu, Yue Su, Chuan Zhang, Udo Greiser, Xinyuan Zhu,* Deyue Yan and Wenxin Wang*

Supramolecularly engineered phospholipids and liposomes based on complementary hydrogen bonding of nucleosides have been developed.



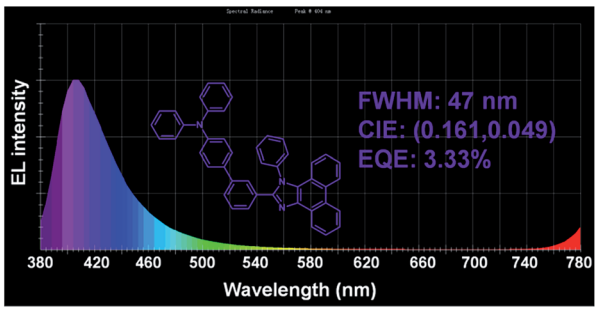



### Systematic re-evaluation of the bis(2-hydroxyethyl)-disulfide (HEDS) assay reveals an alternative mechanism and activity of glutaredoxins

Patricia Begas, Verena Staudacher and Marcel Deponte*

The sequential kinetic patterns of mono- and dithiol glutaredoxins in the HEDS assay reflect an alternative enzymatic mechanism for the glutathione-dependent reduction of disulfide substrates.



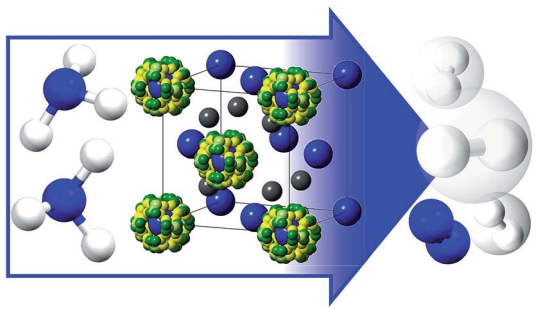



### Highly efficient near ultraviolet organic light-emitting diode based on a *meta*-linked donor–acceptor molecule

Haichao Liu, Qing Bai, Liang Yao, Haiyan Zhang, Hai Xu, Shitong Zhang, Weijun Li, Yu Gao, Jinyu Li, Ping Lu, Hongyan Wang, Bing Yang* and Yuguang Ma

A *meta*-linked donor–acceptor (D–A) structure was utilized to achieve high-efficiency and colour-purity near ultraviolet (NUV) in organic light-emitting diodes (OLEDs).

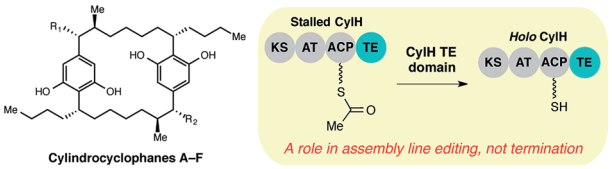




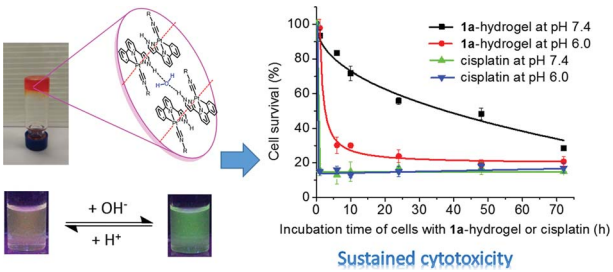
### Ammonia decomposition catalysis using non-stoichiometric lithium imide

Joshua W. Makepeace, Thomas J. Wood, Hazel M. A. Hunter, Martin O. Jones and William I. F. David*

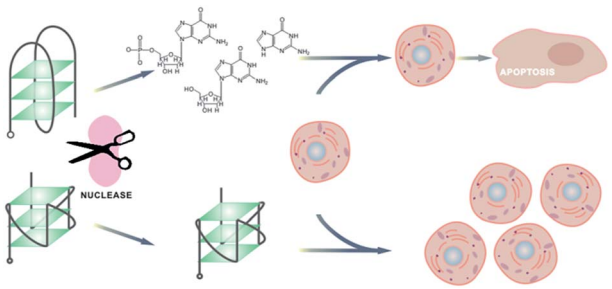
The non-stoichiometric lithium imide–amide system effectively decomposes ammonia to its constituents, hydrogen and nitrogen. Isotopic studies show that this bulk catalytic reaction has the potential to generate high-purity hydrogen for future energy and transport applications.



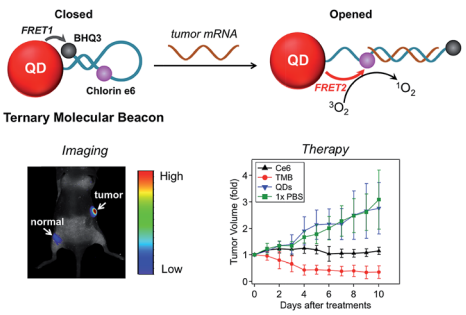


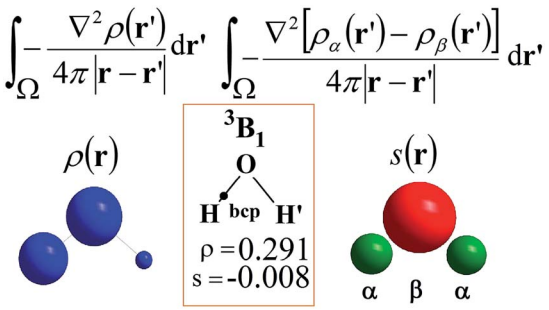







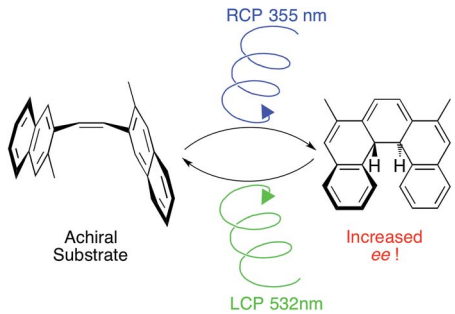



## Insights on spin polarization through the spin density source function

Carlo Gatti,* Ahmed M. Orlando and Leonardo Lo Presti

The source function for the spin density $s(\mathbf{r})$ is introduced, allowing the H and O influence on $s(\mathbf{r})$ to be disentangled.



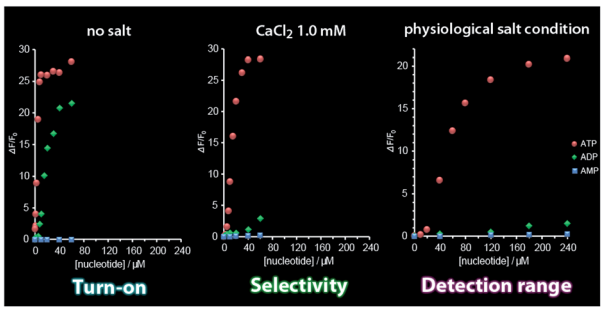



## Dual wavelength asymmetric photochemical synthesis with circularly polarized light

R. D. Richardson, M. G. J. Baud, C. E. Weston, H. S. Rzepa, M. K. Kuimova* and M. J. Fuchter*

An asymmetric photchemical synthesis of a dihyrohelicene demonstrates two wavelengths of circularly polarized (CP) light can be used to ensure the enantiomeric induction intrinsic to each step can combine additively; significantly increasing the asymmetric induction possible over a single wavelength approach.



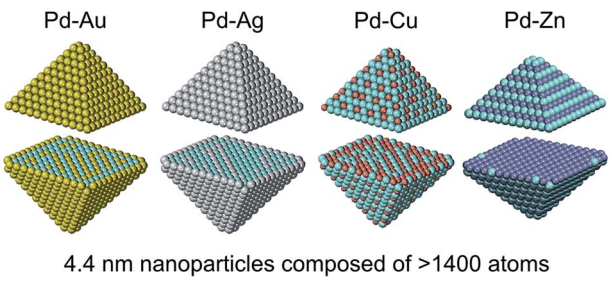



## Tailoring of the desired selectivity and the turn-on detection range in a self-assembly-based fluorescence sensory system

Takao Noguchi,* Bappaditya Roy, Daisuke Yoshihara, Youichi Tsuchiya, Tatsuhiro Yamamoto and Seiji Shinkai*

A new assembly-based fluorescent sensor exhibits much improved selectivity for ATP over ADP and a broad detection range under adjusted salt conditions, providing insight into a pivotal binding mechanism in the self-assembly process.

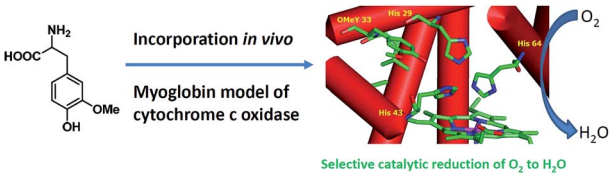




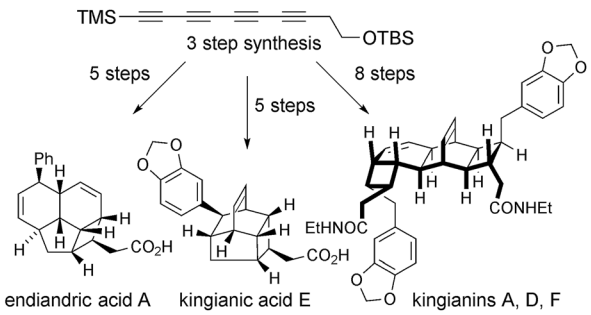

## How to determine accurate chemical ordering in several nanometer large bimetallic crystallites from electronic structure calculations

Sergey M. Kozlov, Gábor Kovács, Riccardo Ferrando and Konstantin M. Neyman*

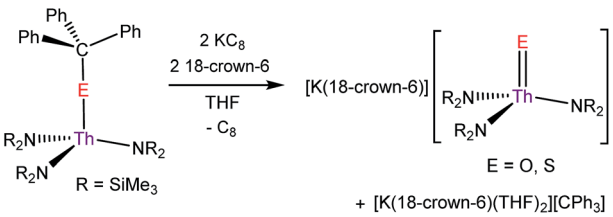
The proposed method allows to efficiently determine the atomic arrangement in bimetallic nanoparticles based on electronic structure calculations and unravels the relationship between structural preferences of atoms and binding in nanoalloys.



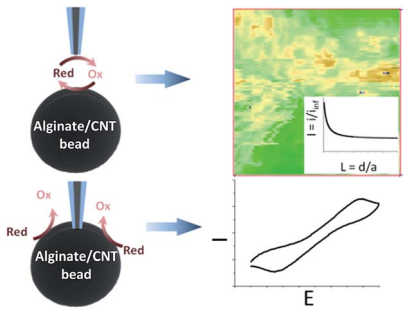






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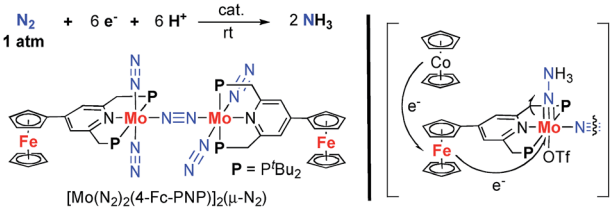




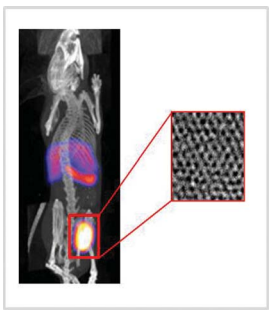



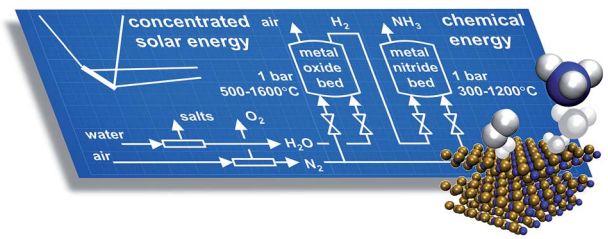




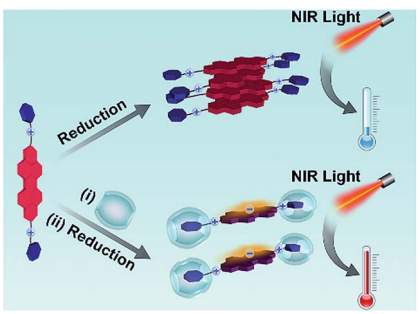

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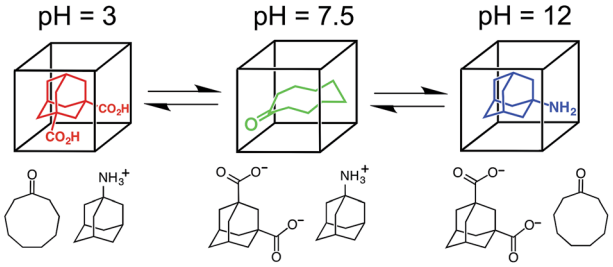




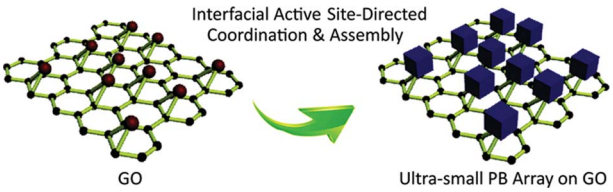




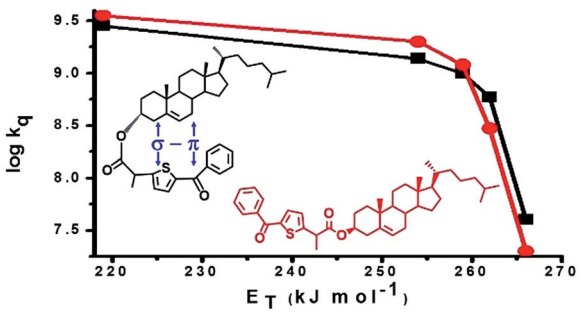




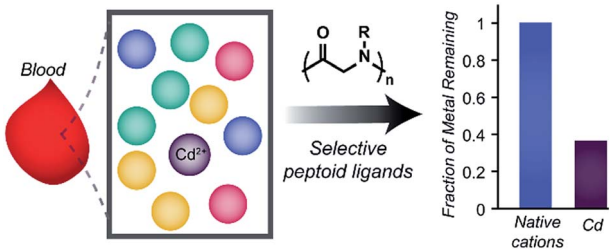

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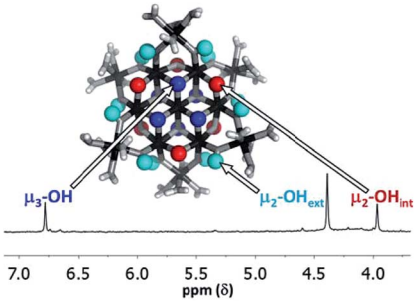




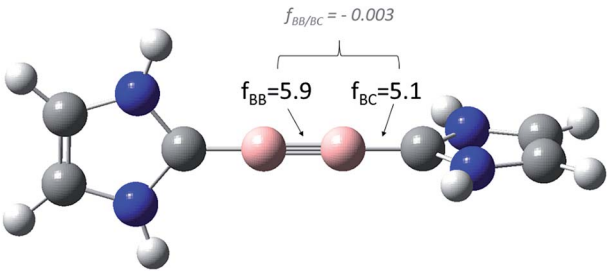




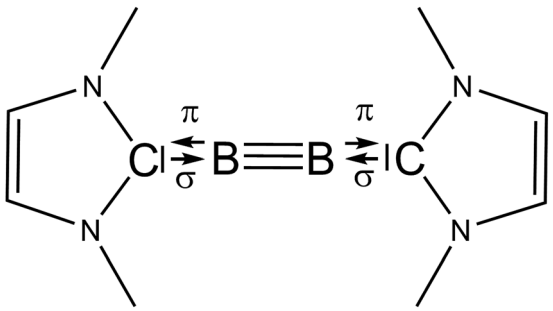




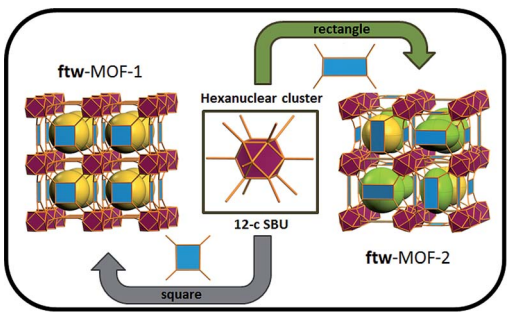

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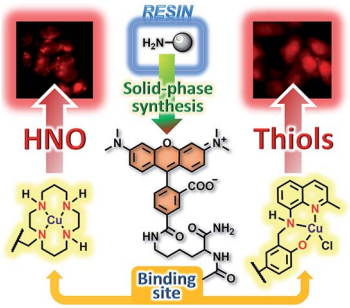




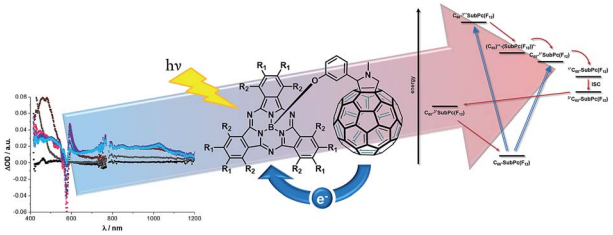




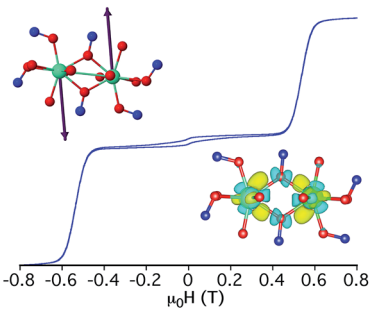




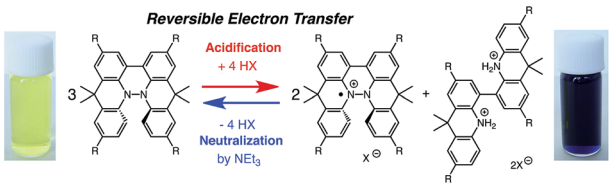

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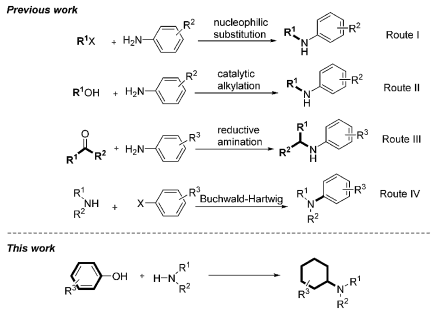
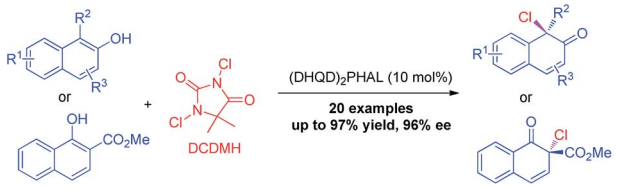



### Palladium-catalyzed reductive coupling of phenols with anilines and amines: efficient conversion of phenolic lignin model monomers and analogues to cyclohexylamines

Zhengwang Chen, Huiying Zeng, Hang Gong, Haining Wang and Chao-Jun Li*

A highly efficient Pd-catalyzed direct coupling of phenolic lignin model monomers and analogues with anilines to give cyclohexylamines using sodium formate as hydrogen donor is described.



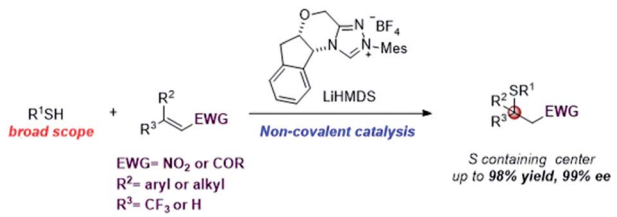



### Organocatalytic asymmetric chlorinative dearomatization of naphthols

Qin Yin, Shou-Guo Wang, Xiao-Wei Liang, De-Wei Gao, Jun Zheng and Shu-Li You*

A highly enantioselective chlorinative dearomatization of 1-naphthol and 2-naphthols was realized for the first time, providing chiral naphthalenones with a Cl-containing all-substituted stereocenter in excellent yields and enantioselectivity (up to 97% yield and 96% ee).



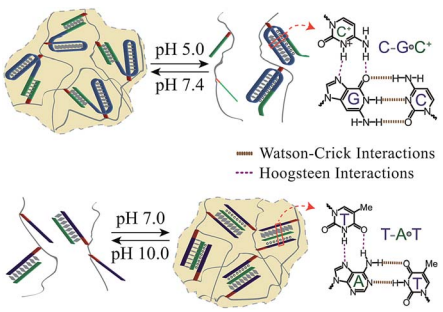



### Highly enantioselective sulfa-Michael addition reactions using *N*-heterocyclic carbene as a non-covalent organocatalyst

Jiean Chen, Sixuan Meng, Leming Wang, Hongmei Tang and Yong Huang*

Enantioselective asymmetric sulfa-Michael addition (SMA) reactions using a chiral *N*-heterocyclic carbene as a non-covalent organocatalyst.






### pH-responsive and switchable triplex-based DNA hydrogels

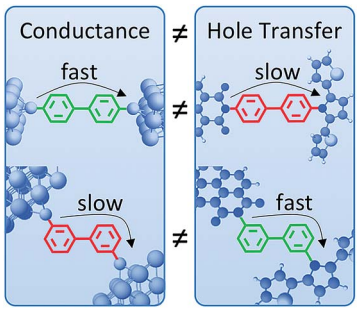
Jiangtao Ren, Yuwei Hu, Chun-Hua Lu, Weiwei Guo, Miguel Angel Aleman-Garcia, Francesco Ricci and Itamar Willner*

pH-responsive DNA hydrogels based on Hoogsteen CG·C$^+$ or TA·T triplex structures undergo reversible pH-induced hydrogel/solution transitions.

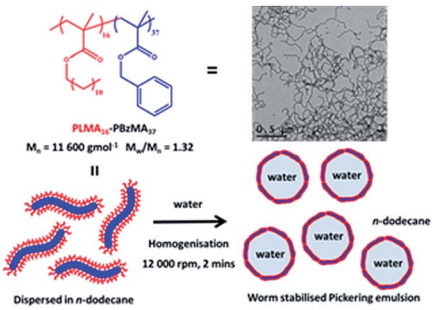
EDGE ARTICLES



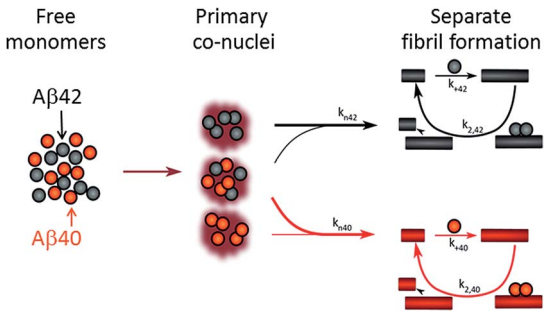




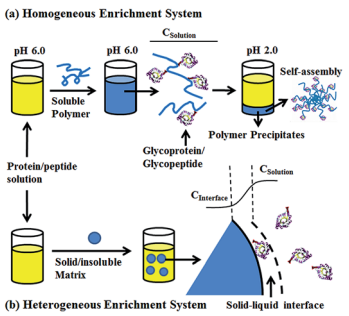






## EDGE ARTICLES

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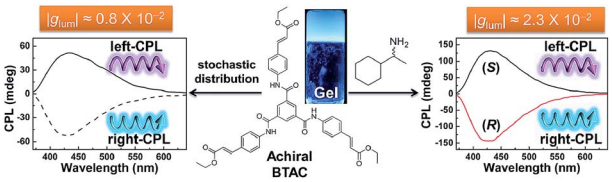




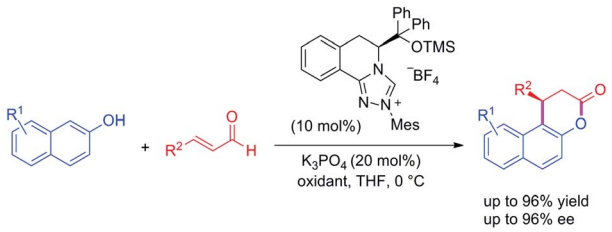




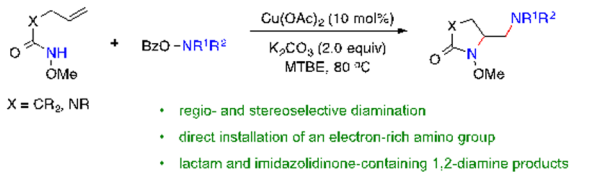




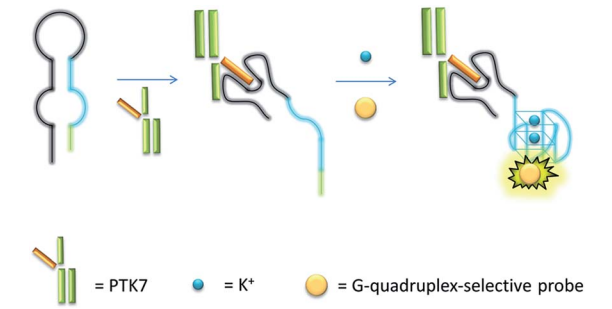

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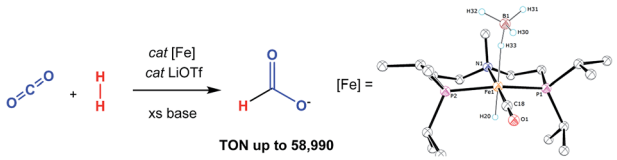
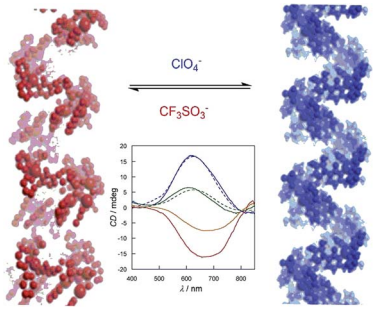



### Iron catalyzed $CO_2$ hydrogenation to formate enhanced by Lewis acid co-catalysts

Yuanyuan Zhang, Alex D. MacIntosh, Janice L. Wong, Elizabeth A. Bielinski, Paul G. Williard, Brandon Q. Mercado, Nilay Hazari* and Wesley H. Bernskoetter*

Iron/Lewis acid co-catalysts hydrogenate to $CO_2$ to formate with unprecedented turnover for a first row transition metal catalyst.



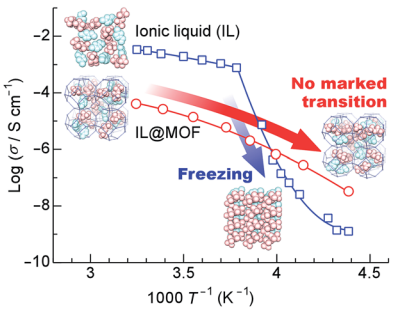



### Homochiral self-assembly of biocoordination polymers: anion-triggered helicity and absolute configuration inversion

Nadia Marino, Donatella Armentano,* Emilio Pardo,* Julia Vallejo, Francesco Neve, Leonardo Di Donna and Giovanni De Munno

The templating roles of $ClO_4^-$ and $CF_3SO_3^-$ allow control and reversible inversion of the chirality of nucleotide-based copper(II) helices. These results hold great potential for developing responsive materials.



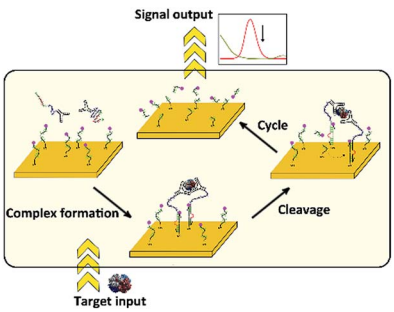



### Low temperature ionic conductor: ionic liquid incorporated within a metal–organic framework

Kazuyuki Fujie,* Kazuya Otsubo, Ryuichi Ikeda, Teppei Yamada and Hiroshi Kitagawa*

An ionic liquid incorporated into micropores of a metal–organic framework showed higher ionic conductivity than bulk ionic liquid at low temperature because of the absence of marked freezing transition.

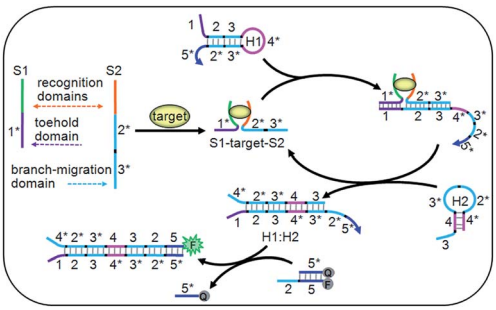




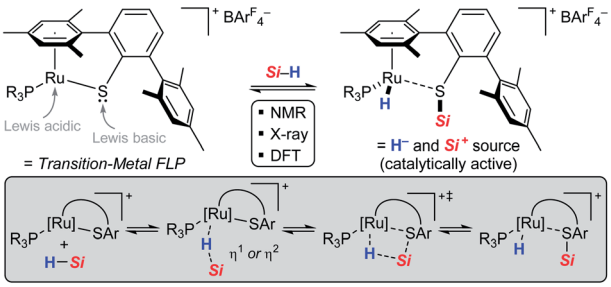

### Simple electrochemical sensing of attomolar proteins using fabricated complexes with enhanced surface binding avidity

Chao Li, Xiaoxi Li, Luming Wei, Muyun Liu, Yangyang Chen and Genxi Li*

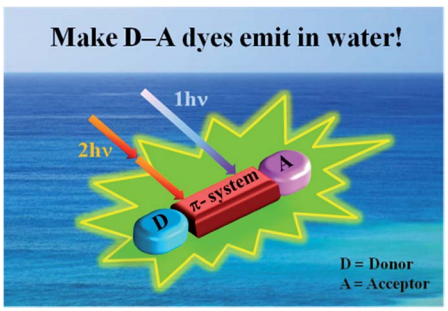
Target molecules selectively equipped with proximity probes can autonomously cleave substrates on the electrode surface, allowing quantification of proteins at attomolar concentrations with one-step incubation.



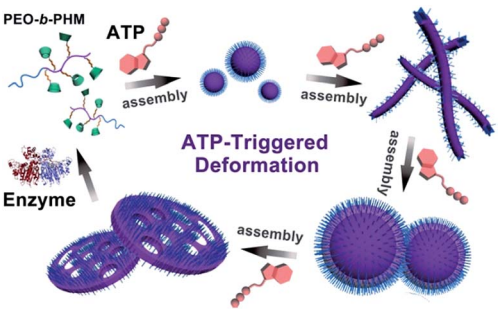




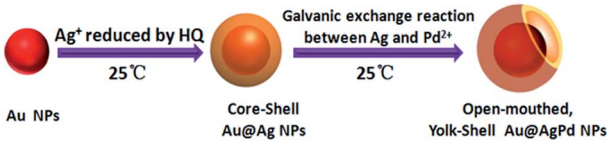





## EDGE ARTICLES



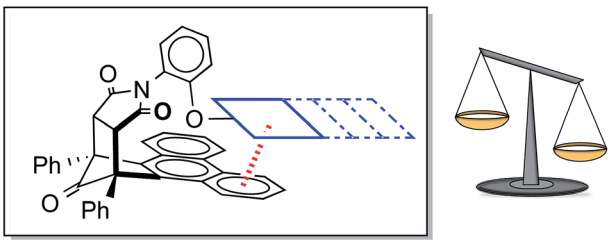



### Synthesis of open-mouthed, yolk–shell Au@AgPd nanoparticles with access to interior surfaces for enhanced electrocatalysis

Qiurong Shi, Peina Zhang, Yijing Li, Haibing Xia,* Dayang Wang and Xutang Tao

Open-mouthed, yolk–shell Au@AgPd nanoparticles are successfully produced *via* galvanic replacement reaction in water at room temperature.



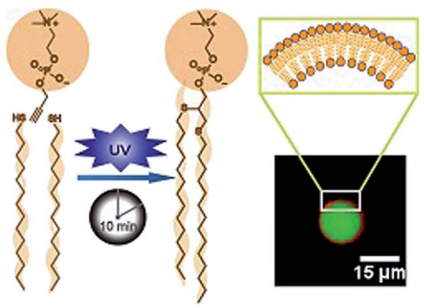



### How important are dispersion interactions to the strength of aromatic stacking interactions in solution?

Jungwun Hwang, Brent E. Dial, Ping Li, Michael E. Kozik, Mark D. Smith and Ken D. Shimizu*

The similarity of aromatic stacking energies in solution for varying sized surfaces suggests that dispersion interactions are a minor contributor.






### Rapid access to phospholipid analogs using thiol-yne chemistry

Cun Yu Zhou, Haoxing Wu and Neal Krishna Devaraj*

Membrane-forming phospholipids analogs can be rapidly formed through use of thiol-yne click chemistry.

## CORRECTION



### Correction: Modulating the electron-transfer properties of a mixed-valence system through host–guest chemistry

Ahmed Zubi, Ashley Wragg, Simon Turega, Harry Adams, Paulo J. Costa, Vítor Félix* and Jim A. Thomas*