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Review
Protein Conformational Switches: From Nature to Design
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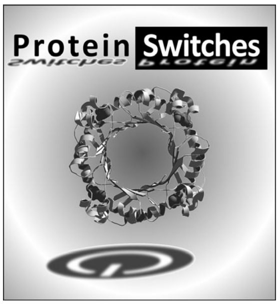
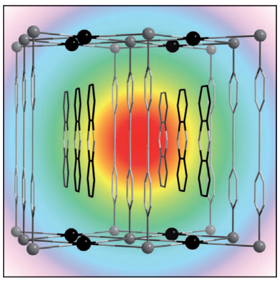
A gel sculpture…

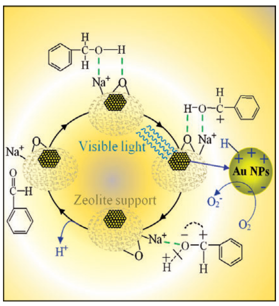
… the first of its kind, derived from a simple organic salt has been demonstrated to be stable for months. The same gel also showed remarkable load-bearing and self-healing properties. A crystal engineering approach was adopted to discover such wonderful soft material. For more details, see the Full Paper by P. Dastidar et al. on page 8057 ff.



Protein Engineering
Proteins are unique in nature in that they incorporate a large array of conformational change modes into an equally diverse repertoire of biological functions. Cells and viruses employ protein conformational switches for molecular recognition, environmental sensing, and regulating signaling pathways involved in development, homeostasis, immunity, infection, and other cellular processes. Structural and biochemical elucidation of some of these switching mechanisms has enabled researchers to begin adapting them for use in biosensing and functional regulation. For more details see the Review by S. N. Loh and J.-H. Ha on page 7984 ff.

Coordination Polymers
In their Communication on page 8013 ff., J. A. Real et al. report a new Fe^{II} spin crossover porous coordination polymer, $\{Fe(dpe)[Pt(CN)_4]\}$, that functions as a robust host cage for reversible encapsulation of aromatic compounds. Detection of the guest molecules was performed by analyzing the temperature dependence of the magnetic susceptibility of the corresponding clathrate. A fingerprint-like magnetic response pattern to each analyte was attained.





Gold Nanoparticles
Gold nanoparticles (Au-NPs) can absorb visible light due to as surface plasmon resonance effect and selectively oxidize aromatic alcohols at ambient temperature. In such photooxidation reactions, the interaction between aromatic alcohols and zeolite contributes to enhance the local electromagnetic field of incident light. More importantly, the photooxidation of benzyl alcohol significantly reduced the apparent activation energy compared with thermal-activation oxidation. The finding may inspire further studies on various organic syntheses driven by sunlight, design of new photocatalysts, catalytic reaction mechanism, and green chemistry processes. For more details see the Full Paper by X.-B. Ke et al. on page 8048 ff.

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