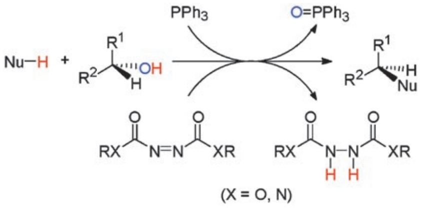
The Mitsunobu Reaction

*T. Y. S. But, P. H. Toy**

The Mitsunobu Reaction: Origin, Mechanism, Improvements, and Applications

Chem. Asian J.
DOI: **10.1002/asia.200700182**

Classics never fade away: The Mitsunobu reaction is a widely used and versatile method for the dehydrative oxidation–reduction condensation of an acid/pronucleophile with an alcohol mediated by phosphine and azo reagents. The history, mechanism, and recent developments of this stereoselective workhorse condensation reaction are reviewed.



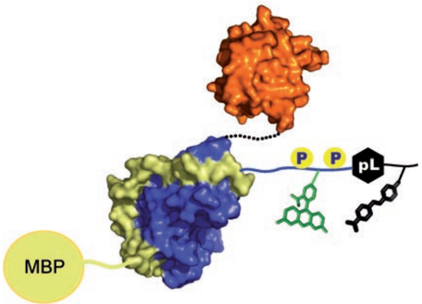
Photoactivation

*M. E. Hahn, J.-P. Pellois, M. Vila-Perelló, T. W. Muir**

Tunable Photoactivation of a Post-translationally Modified Signaling Protein and its Unmodified Counterpart in Live Cells

ChemBioChem
DOI: **10.1002/cbic.200700404**

Strike a pose… Expressed protein ligation was used to prepare caged analogues of the signaling protein Smad2 (see illustration). The function and fluorescence of the analogues could be photocontrolled in a correlated fashion. This strategy permitted the titration of the cellular levels of active phosphorylated Smad2 in its biologically relevant, full-length form.

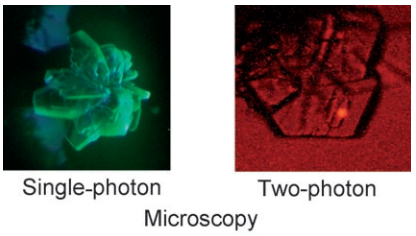


Lanthanide Luminescence

A. D'Aléo, G. Pompidor, B. Elena, J. Vicat, P. L. Baldeck, L. Toupet, R. Kahn, C. Andraud, O. Maury**

Two-Photon Microscopy and Spectroscopy of Lanthanide Bioprobes

ChemPhysChem
DOI: **10.1002/cphc.200700375**



Lanthanide bioprobes: The first two-photon microscopy imaging experiments using tris-dipicolinate terbium complexes, as a probe were carried out on derivative protein crystals. Whereas one-photon irradiation results in green luminescence of the entire crystal aggregate, two-photon excitation gives a three-dimensionally resolved spot corresponding to the confocal volume (see picture).

Core–Shell Nanostructures

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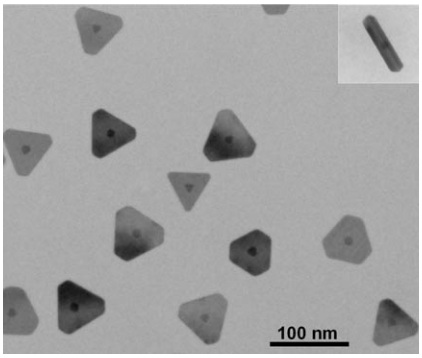
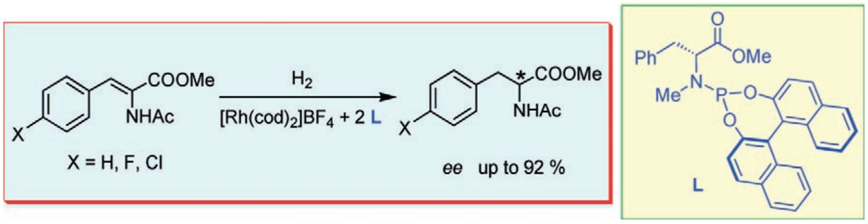
Plasmon-Driven Synthesis of Triangular Core–Shell Nanoprisms from Gold Seeds

Angew. Chem. Int. Ed.
DOI: **10.1002/anie.200703185**



Outside silver, inside gold: Gold nanoparticles are used as seeds to probe the role of plasmon excitation in the photomediated growth of silver nanoprisms. This approach generates novel core–shell nanostructures that contain a spherical (see TEM image, inset shows side view) or triangular-prism gold core with a triangular silver prism shell. The architecture of these particles can be tuned by controlling excitation wavelength and gold-core diameter.

Asymmetric Catalysis



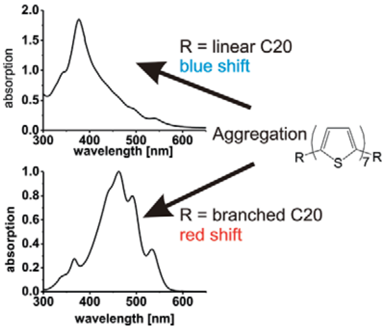
A series of chiral monodentate ligands combining a 3,5-dioxa-4-phosphacycloheptadinaphthyl unit either with a phenylalanine- or with an alanine-derived fragment were synthesised and tested in the hydrogenation of 2-(acetylamino)-3-(aryl)propenoic methyl esters.

L. Eberhardt, D. Armspach, D. Matt,**
L. Toupet, B. Oswald

Synthesis of Chiral, Monodentate Aminophosphane and Phosphoramidite Ligands Derived from Amino Acid Esters: Application in Rh-Catalysed Asymmetric Olefin Hydrogenation Reactions

Eur. J. Inorg. Chem.
DOI: **10.1002/ejic.200700474**

Aggregation of Oligothiophenes



α- and α,ω-substituted oligothiophenes show a strong aggregation behaviour in solution depending on the geometry of the alkyl substituents which is reflected by a distinct blue or red shift, respectively, in the absorption spectra. A strong influence of the substituent is also found in the morphology of the aggregates and of thermal properties in the solid state.

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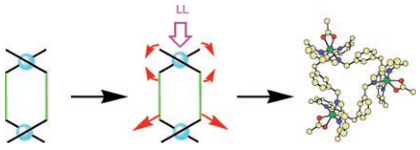
C. Hoffmann-Richter, K. Landfester,
M. Möller

Aggregation Phenomena of Long α- and α,ω-Substituted Oligothiophenes – the Effect of Branched vs. Linear End-Groups

Eur. J. Org. Chem.
DOI: **10.1002/ejoc.200700566**

Supramolecular Chemistry



Taken in with open arms! Coordination chemistry is used to destabilise a linear array and turn it into a circular helicate (see figure). Changes in the geometry of the metal centre allow the product to be tailored to form dimers or circular helicates.

J. Hamblin, F. Tuna, S. Bunce, L. J. Childs,
A. Jackson, W. Errington, N. W. Alcock,
H. Nierengarten, A. Van Dorsselaer,
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Supramolecular Circular Helicates Formed by Destabilisation of Supramolecular Dimers

Chem. Eur. J.
DOI: **10.1002/chem.200700848**

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