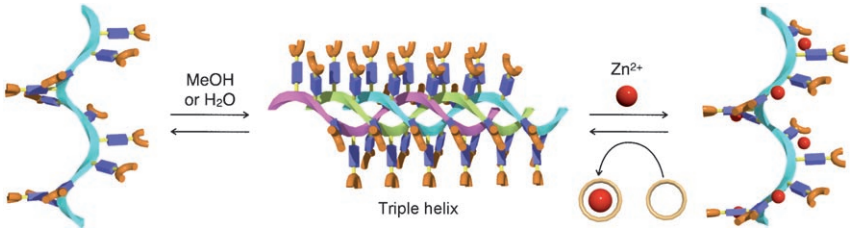
Helical Structures

*M. Ikeda, S. Haraguchi, M. Numata, S. Shinkai**

Controlled Stability of the Triple-Stranded Helical Structure of a β-1,3-Glucan with a Chromophoric Aromatic Moiety at a Peripheral Position

Chem. Asian J.
DOI: **10.1002/asia.200700150**



Twisted nature: A semiartificial β-1,3-glucan that bears chromophoric aromatic groups at its peripheral positions adopts a triple-stranded helical configuration in water- and methanol-rich dimethyl sulfoxide. The stability of this structure can be controlled by solvent composition and metal-ion binding.

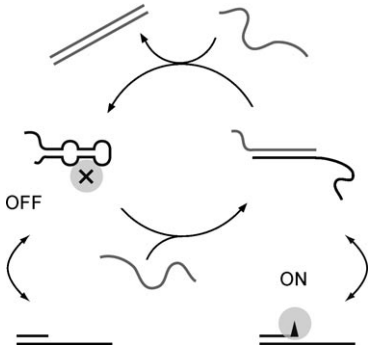
Aptamers

*E. Friedrichs, F. C. Simmel**

Controlling DNA Polymerization with a Switchable Aptamer

ChemBioChem
DOI: **10.1002/cbic.200700296**

Controllable biochemical reactions. DNA polymerization by Taq polymerase can be controlled by switching an aptamer for Taq Pol between a binding and a nonbinding form.



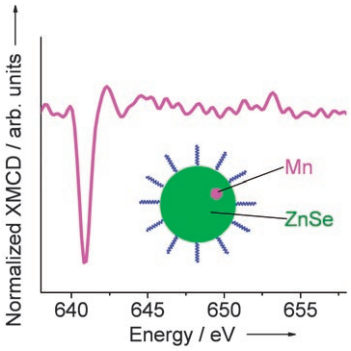
Semiconducting Nanocrystals

A. Hofmann, C. Graf, C. Boeglin, E. Rühl*

Magnetic and Structural Investigation of Mn^{2+}-Doped ZnSe Semiconductor Nanoparticles

ChemPhysChem
DOI: **10.1002/cphc.200700050**

Single manganese ions are located in the bulk interior of Mn-doped ZnSe (ZnSe:Mn) nanoparticles, according to studies by X-ray magnetic circular dichroism (XMCD). This method is a powerful tool for exploring the local electronic environment of transition-metal ions and for the quantitative investigation of their magnetic properties. The picture shows the XMCD spectrum and a schematic of a single particle with stabilizing organic ligands (green).

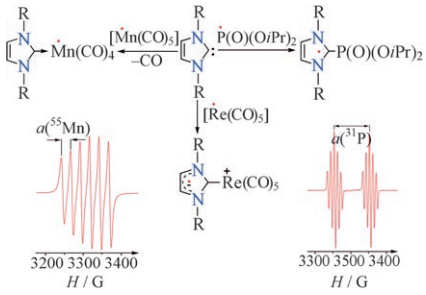


Carbenes

B. Tumanskii, D. Sheberla, G. Molev, Y. Apeloig**

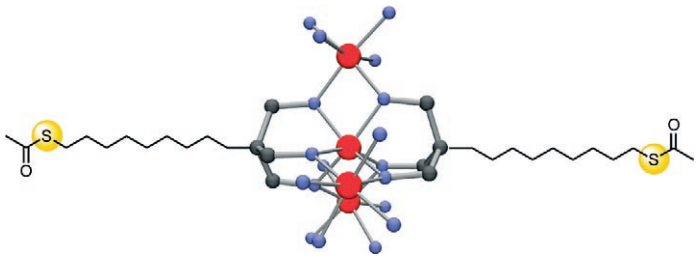
Dual Character of Arduengo Carbene–Radical Adducts: Addition versus Coordination Product

Angew. Chem. Int. Ed.
DOI: **10.1002/anie.200702297**



At last, two general types of radical adducts have been obtained by the addition of radicals to a stable N-heterocyclic carbene. Addition products were obtained with $(iPrO)_2(O)P^{\bullet}$ and $[(CO)_5Re^{\bullet}]$, while with $[(CO)_5Mn^{\bullet}]$ and $[(CO)_3CpMo^{\bullet}]$ ($Cp = \eta^5$-cyclopentadienyl) substitution of one carbonyl ligand and coordination to the metal center occurred to give novel metal-centered radicals (see scheme).

Single-Molecule Magnets



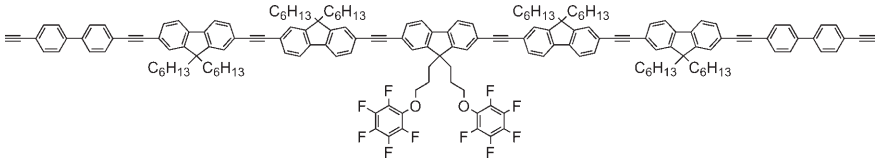
Single-molecule magnets of the Fe_4 family have been functionalized with terminal "alligator clips" by exploiting the site-specific coordinating ability of 2-(hydroxymethyl)propane-1,3-diol derivatives. The complexes have an $S = 5$ ground state and energy barriers exceeding 15 K.

A.-L. Barra, F. Bianchi, A. Caneschi, A. Cornia, D. Gatteschi, L. Gorini, L. Gregoli, M. Maffini, F. Parenti, R. Sessoli,* L. Sorace, A. M. Talarico*

New Single-Molecule Magnets by Site-Specific Substitution: Incorporation of "Alligator Clips" into Fe_4 Complexes

Eur. J. Inorg. Chem.
DOI: **10.1002/ejic.200700382**

Molecular Wires



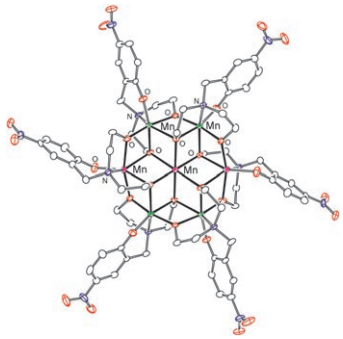
An aryleneethynylene derivative of ca. 8 nm molecular length with terminal alkyne substituents and 9,9-dihexylfluorene units in the backbone has been synthesized.

X. Zeng, C. Wang, M. R. Bryce, A. S. Batsanov, S. Sirichantaropass, V. M. García-Suárez, C. J. Lambert, I. Sage*

Functionalized 8 nm Long Aryleneethynylene Molecular Wire with Alkyne Termini

Eur. J. Org. Chem.
DOI: **10.1002/ejoc.200700507**

Single-Molecule Magnets



Wheel of magnets: A heptanuclear $Mn^{II,III}$ wheel-shaped single molecule magnet (see figure) has an $S = 19/2$ spin ground state with an easy-axis-type magnetic anisotropy of $D = -0.283$ K. Magnetization experiments using static and pulse field magnets showed different magnetic hysteresis loops due to quantum tunneling of the magnetization.

*S. Koizumi, M. Nihei, T. Shiga, M. Nakano, H. Nojiri, R. Bircher, O. Waldmann, S. T. Ochsenbein, H. U. Güdel, F. Fernandez-Alonso, H. Oshio**

A Wheel-Shaped Single-Molecule Magnet of $[Mn^{II}_3Mn^{III}_4]$: Quantum Tunneling of Magnetization under Static and Pulse Magnetic Fields

Chem. Eur. J.
DOI: **10.1002/chem.200700714**

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