

SPOTLIGHTS ...

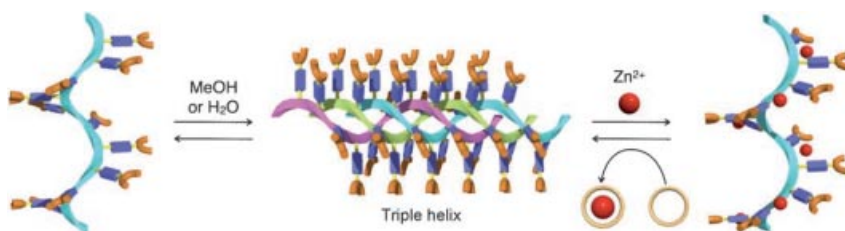
Helical Structures

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 config-

uration 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*

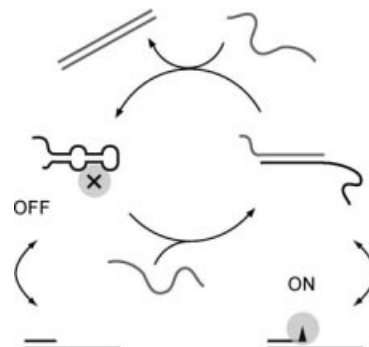
Controlling DNA Polymerization with a Switchable Aptamer

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

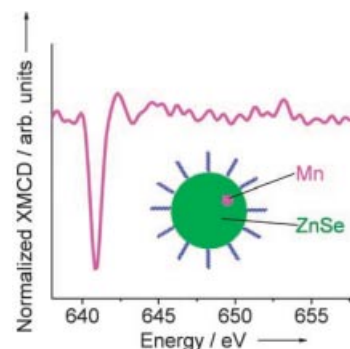
A. Hofmann, C. Graf,* C. Boeglin, E. Rühl

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).



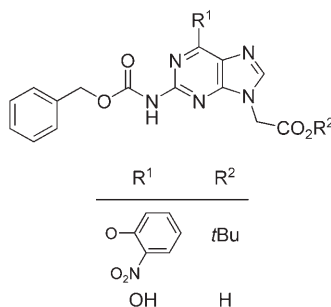
Antiviral Agents

K. F. Adebambo, S. Zanolli, M. G. Thomas, R. Cancio, N. M. Howarth,* G. Maga*

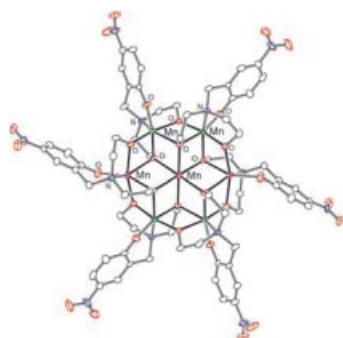
N^2 -Benzyloxycarbonylguan-9-yl Acetic Acid Derivatives as HIV-1 Reverse Transcriptase Non-Nucleoside Inhibitors with Decreased Loss of Potency Against Common Drug-Resistance Mutations.

ChemMedChem

DOI: 10.1002/cmdc.200700045



Beating the RT mutants: A novel class of N^2 -Cbz-guan-9-yl acetic acid derivatives is endowed with anti-HIV-1 reverse transcriptase (RT) activity in the low micromolar range. These compounds have improved efficacy towards drug-resistant RT mutants relative to nevirapine and efavirenz. Their unique scaffold and interesting resistance profiles warrant further development.



Wheel of magnets: A heptanuclear $\text{Mn}^{\text{II,III}}$ 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.

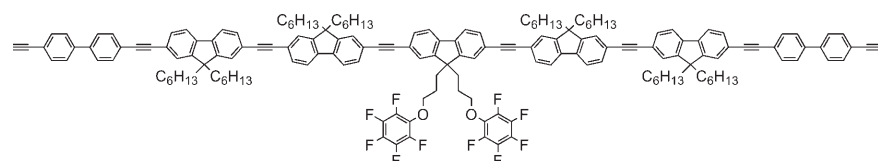
Single-Molecule Magnets

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 $[\text{Mn}^{\text{II}}_3\text{Mn}^{\text{III}}_4]$: Quantum Tunneling of Magnetization under Static and Pulse Magnetic Fields

Chem. Eur. J.

DOI: 10.1002/chem.200700714



An arylenethynylene derivative of ca. 8 nm molecular length with terminal alkyne substituents and 9,9-dihexyl-

fluorene units in the backbone has been synthesized.

Molecular Wires

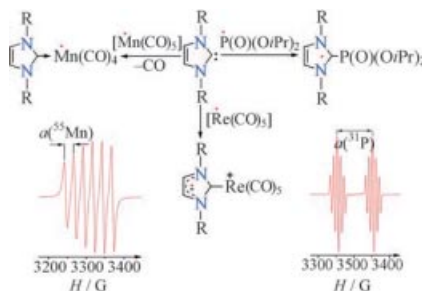
X. Zeng, C. Wang, M. R. Bryce,* A. S. Batsanov, S. Sirichantaropass, V. M. García-Suárez, C. J. Lambert, I. Sage

Functionalized 8 nm Long Arylenethynylene Molecular Wire with Alkyne Termini

Eur. J. Org. Chem.

DOI: 10.1002/ejoc.200700507

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 $(i\text{PrO})_2(\text{O})\text{P}^\bullet$ and $[(\text{CO})_5\text{Re}^\bullet]$, while with $[(\text{CO})_5\text{Mn}^\bullet]$ and $[(\text{CO})_5\text{CpMo}^\bullet]$ ($\text{Cp} = \eta^5\text{-cyclopentadienyl}$) substitution of one carbonyl ligand and coordination to the metal center occurred to give novel metal-centered radicals (see scheme).



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



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