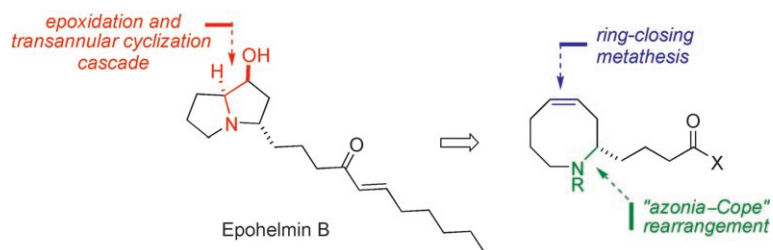


Total Synthesis

A. Fürstner,* A. Korte

Total Synthesis of Epohelmin B and Its Analogues



Lower your cholesterol: Epohelmin B is an interesting new lead in the quest for selective inhibitors of lanosterol synthase, the key enzyme in the cholesterol biosynthesis pathway in humans. A

highly efficient and largely reagent-controlled total synthesis of this pyrrolizidine alkaloid is presented, which also opens access to a first collection of epohelmin-like compounds.

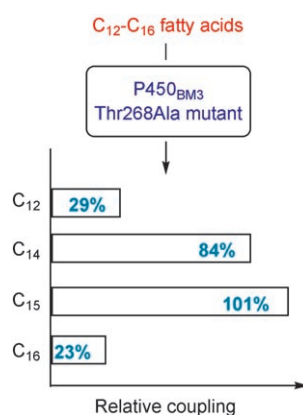
Chem. Asian J.

DOI: 10.1002/asia.200700288

Enzyme Catalysis

M. J. Cryle, J. J. De Voss*

The Role of the Conserved Threonine in P450_{BM3} Oxygen Activation: Substrate-Determined Hydroxylation Activity of the Thr268Ala Mutant



Handle with care: The ability of a mutant P450_{BM3} that lacks a catalytically important threonine residue (Thr268Ala) to hydroxylate fatty acids has been found to be dependant upon the chain length of the substrate (see graph). This indicates that caution is required in assuming a loss of activity with such threonine to alanine mutants of P450 enzymes, as activity with certain substrates might be maintained.

ChemBioChem

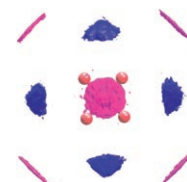
DOI: 10.1002/cbic.200700537

Ionic Liquids

B. L. Bhargava, M. L. Klein, S. Balasubramanian*

Structural Correlations and Charge Ordering in a Room-Temperature Ionic Liquid

Molecular dynamics simulations of a room-temperature ionic liquid show evidence of charge ordering (see figure). The intermolecular structure is investigated by calculating the neutron- and X-ray-weighted structure factors.



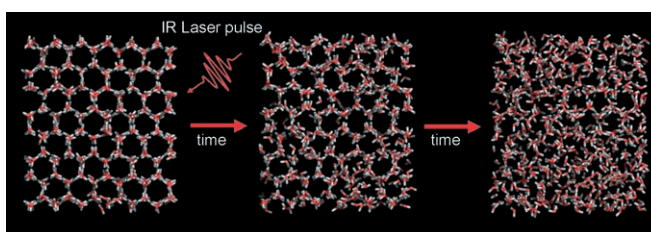
ChemPhysChem

DOI: 10.1002/cphc.200700666

Molecular Dynamics Simulations

C. Coleman, D. van der Spoel*

Picosecond Melting of Ice by an Infrared Laser Pulse: A Simulation Study



Cold as ice: Molecular dynamics simulation provides snapshots of a melting ice crystal (see picture). The laser pulse heats up the system, and the energy is absorbed in the OH bonds. After a few picoseconds, the energy is transferred

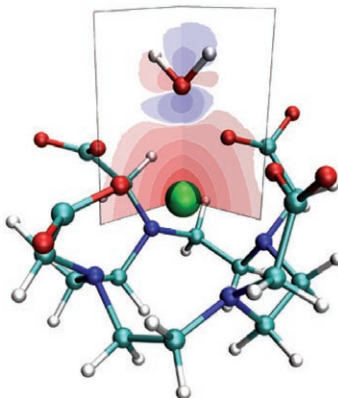
to rotational and translational energy, causing the crystal to melt. The melting starts as a nucleation process, and even long after the first melting is initialized, pockets of crystalline structures can be found.

Angew. Chem. Int. Ed.

DOI: 10.1002/anie.703987

MRI Contrast Agents

Fundamental parameters for nuclear spin relaxation such as quadrupole coupling constants and hyperfine interaction tensors can be obtained from quantum chemical calculations combined with molecular dynamics simulations. Recent results are reviewed on the Gd^{3+} ion in aqueous solution and on the MRI contrast agent $[Gd(DOTA)(H_2O)]^-$.

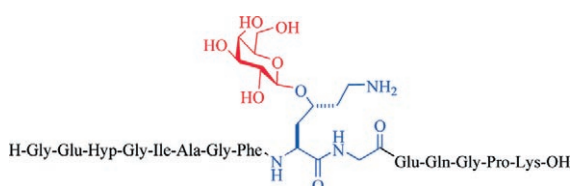


O. V. Yazyev, L. Helm*

Nuclear Spin Relaxation Parameters of MRI Contrast Agents – Insight from Quantum Mechanical Calculations

Eur. J. Inorg. Chem.
DOI: 10.1002/ejic.200701013

Glycopeptide Synthesis



The preparation of an *N*-Fmoc-protected galactosylated (2*S*,4*R*)-4-hydroxylysine derivative and its incorporation into the sequence of an immunodominant glycopeptide from type II collagen is described. The synthesis of the 4-hy-

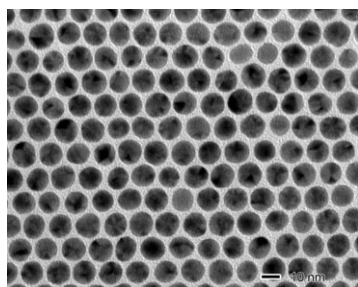
droxylysine aglycon started from (2*S*,4*S*)-4-hydroxy-6-oxo-1,2-piperidinedicarboxylate and involved the formation of a γ -lactone and its *N*-acylation with glycol esters.

J. Marin, J.-P. Briand, G. Guichard*

Synthesis of a Galactosylated 4-Hydroxylysine Building Block and Its Incorporation into a Collagen Immunodominant Glycopeptide

Eur. J. Org. Chem.
DOI: 10.1002/ejoc.200700806

Gold



Control your size! Gold(I) halides, including AuCl and AuBr, were employed for the first time as precursors in the preparation of Au nanoparticles (see figure) with a narrow size distribution through a facile synthetic approach.

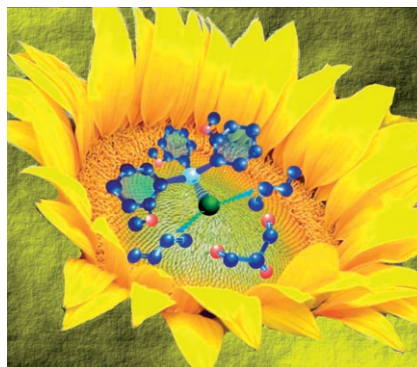
X. Lu, H.-Y. Tuan, B. A. Korgel, Y. Xia*

Facile Synthesis of Gold Nanoparticles with Narrow Size Distribution by Using AuCl or AuBr as the Precursor

Chem. Eur. J.
DOI: 10.1002/chem.200701570

Glycerol Conversion

The chain gang: Crude glycerol, a by-product in the production of biodiesel, can be telomerized with 1,3-butadiene to form C_8 -chain ethers. The development of suitable catalyst systems for the direct telomerization of crude glycerol at the biodiesel plant provides a route to useful building blocks from cheap starting materials for commercially valuable products such as detergents and surfactants.



R. Palkovits, I. Nieddu,
R. J. M. Klein Gebbink, B. M. Weckhuysen*

Highly Active Catalysts for the Telomerization of Crude Glycerol with 1,3-Butadiene

ChemSusChem
DOI: 10.1002/cssc.200700147