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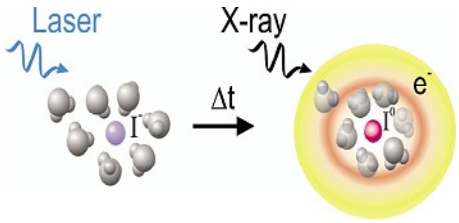
Observation of the Solvent Shell Reorganization around Photoexcited Atomic Solutes by Picosecond X-ray Absorption Spectroscopy

V.-T. Pham, W. Gawelda, Y. Zaushitsyn, M. Kaiser, D. Grolimund, S. L. Johnson, R. Abela, C. Bressler, and M. Chergui*, *J. Am. Chem. Soc.* **2007**, *129*, 1530
EPFL; Paul Scherrer Institut, Villigen

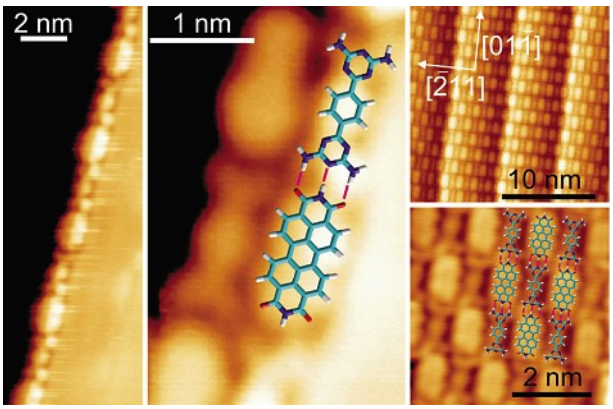
This paper reports on the observation of the solvation shell rearrangement after abstraction of the electron from aqueous I^- in a laser pump/X-ray probe experiment by recording, 50 ps after laser excitation, the X-ray absorption L_1- and L_3-edge spectra. The L_1-edge spectrum clearly identifies the I^0 neutral species after excitation and suggests a substantial amount of back-transfer of charge from the solvent molecules. Both edge spectra show a significant rearrangement of the solvation shell around the newly formed I^0.



Self-Assembly of Periodic Bicomponent Wires and Ribbons

M.E. Cañas-Ventura, W. Xiao, D. Wasserfallen, K. Müllen, H. Brune, J.V. Barth, and R. Fasel*, *Angew. Chem., Int. Ed.* **2007**, *46*, 1814
Empa, Thun; EPFL; Max-Planck-Institut für Polymerforschung; University of British Columbia

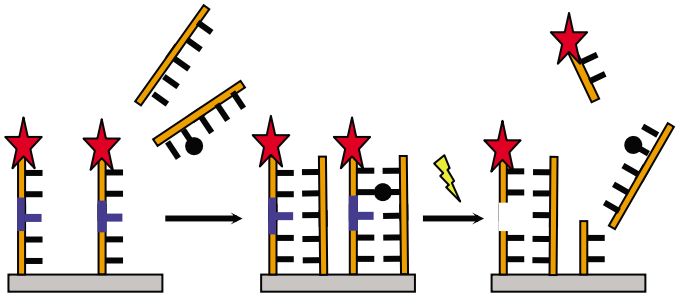
Highly ordered heteromolecular lattices result from the deposition of complementary hydrogen-bonding BDATB and PTCDI moieties on a vicinal gold surface. Depending on coverage, as shown by ultrahigh vacuum scanning tunneling microscopy investigations, the bicomponent system gives rise to a regular superlattice of 1D heteromolecular wires consisting of one or two molecular rows, as well as 2D supramolecular ribbons.



Site-Specific DNA Cleavage on a Solid Support: A Method for Mismatch Detection

S. Thoeni, C. J. Kressierer, B. Giese*, *Angew. Chem., Int. Ed.* **2007**, *46*, 2112.
University of Basel

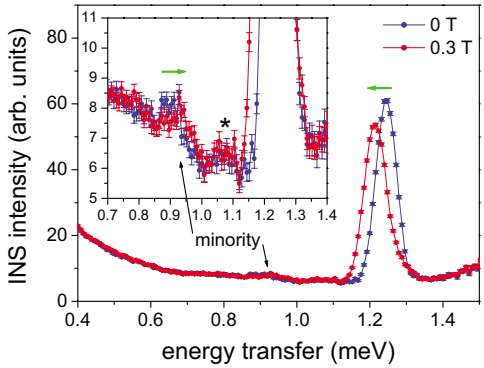
The search for new analytical methods to detect disease-causing single nucleotide polymorphisms (SNPs) has received a substantial boost with the development of immobilized (solid support) DNA strands incorporating (i) a cleavage site (blue) and (ii) a detection tag (red star). If, after hybridization and cleavage by irradiation, the situation is mismatched (black circle), then the marker is released from the solid phase. In the matched case the marker remains on the bead. Hybridization takes only 2 h, the photolysis 10 min and, after a simple filtration, this efficient concept shows the result by a simple color change.



Direct Identification of the Minority and Majority Species in the Single-Molecule Magnet Mn_{12}-Acetate by Inelastic Neutron Scattering

O. Waldmann*, G. Carver, C. Dobe, A. Sieber, H. U. Güdel, and H. Mutka, *J. Am. Chem. Soc.* **2007**, *129*, 1526
University of Bern; Institut Laue-Langevin (Grenoble)

In this communication, Waldmann and coworkers show, thanks to a field-dependent inelastic neutron scattering (INS) experiment on an array of oriented single crystals, that the minority species observed in the INS spectra of the single-molecule magnet (SMM) Mn_{12}-acetate is the fast-relaxing species observed in, for instance, AC-susceptibility measurements. This should enable a better understanding of the structural origin of the easy-axis anisotropy parameter *D* and the slow magnetic relaxation in the prototypical SMM Mn_{12}-acetate.



Prepared by M. Austeri; D. Linder; N. Mehanna; R. Novikov; F. Torricelli; J. Lacour
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