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Monolayer Films

T. W. Kim, E.-J. Oh, A.-Y. Jee, S. T. Lim, D. H. Park, M. Lee, S.-H. Hyun, J.-H. Choy, S.-J. Hwang*

Soft-Chemical Exfoliation Route to Layered Cobalt Oxide Monolayers and Its Application for Film Deposition and Nanoparticle Synthesis

Layered CoO₂ nanosheets: Exfoliated nanosheets of layered cobalt oxide can be synthesized through the intercalation of quaternary tetramethylammonium ions into protonated lithium cobalt oxide. The hexagonal lattice of layered cobalt oxide remains intact even after the exfoliation process (see scheme). Through the deposition of colloidal suspension, we can produce monodisperse cobalt oxide nanoparticles as well as the monolayer film of cobalt oxide.



Chem. Eur. J.
DOI: 10.1002/chem.200901590

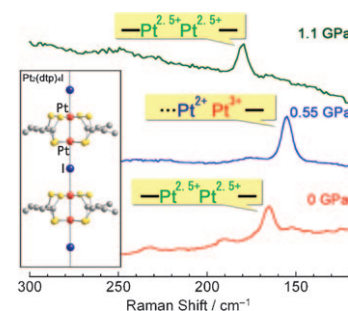


Phase Transitions

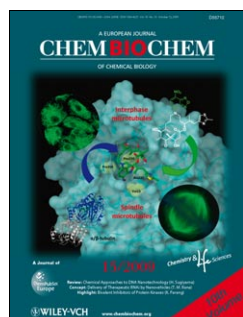
K. Otsubo, A. Kobayashi, M. Hedo, Y. Uwatoko, H. Kitagawa*

Pressure-Induced Consecutive Phase Transitions of a Metallic MMX-Chain Complex, Pt₂(dtp)₄I (dtp: C₂H₅CS₂⁻)

Under pressure: Raman spectra clearly reveal the signs of the electronic states. Raman spectroscopic studies on a metallic MMX-chain complex, Pt₂(dtp)₄I, under high pressure reveal that its electronic state changes with pressure as follows; AV (—Pt^{2.5+}—Pt^{2.5+}—I—) and CP (—Pt²⁺—Pt³⁺—I—) states (below 1.0 GPa), AV state (1.0–3.0 GPa), and CP state (above 3.0 GPa).



Chem. Asian J.
DOI: 10.1002/asia.200900340

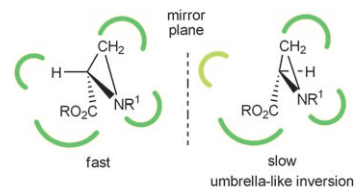


Nucleic Acids

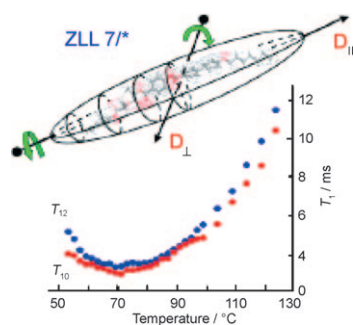
H. Lu, S. R. Lynch, A. H. F. Lee, E. T. Kool*

Structure and Replication of γDNA: A Novel Genetic Set Widened by Benzo-Homologation

Expanding horizons: The first solution structure of the “γDNA” alternative genetic set, and studies of polymerase replication of γDNA pairs in vitro are described. The structure reveals an antiparallel, base-paired helix. Replication experiments show the extent and limits of the three γDNA pairings.



ChemBioChem
DOI: 10.1002/cbic.200900434



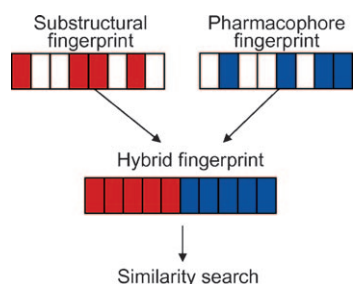
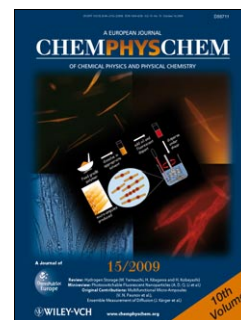
ChemPhysChem
DOI: 10.1002/cphc.200900385

Liquid Crystals

V. Domenici,* A. Marini, C. A. Veracini, C. Malanga, R. Menicagli

From the SmA to the Hexatic, Including the SmC*, SmC*_A and SmC*_re Phases: A ^2H NMR Relaxation Study

A relaxing time study: The dynamics of a liquid-crystalline smectogen in its rich variety of mesophases has been explored by means of spin-lattice (T_{1Q} and T_{1Z}) and spin-spin (T_2) ^2H NMR relaxation (see picture). A slowdown of dynamic motions affecting both the phenyl and biphenyl moieties is observed that corresponds to the antiferroelectric and re-entrant phases.



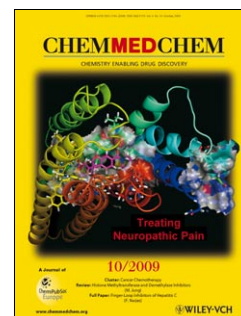
ChemMedChem
DOI: 10.1002/cmdc.200900243

Molecular Fingerprints

B. Nisius, J. Bajorath*

Molecular Fingerprint Recombination: Generating Hybrid Fingerprints for Similarity Searching from Different Fingerprint Types

Fingerprint recombination is introduced as a methodology to generate hybrid fingerprints from original fingerprints of distinct design. Hybrid fingerprints combine preferred bit subsets from their parental fingerprints and emphasize compound class-specific features during similarity searching, which leads to consistent improvements in search performance. This new fingerprint design strategy is generally applicable to fingerprint representations where individual bit positions are associated with defined chemical information.



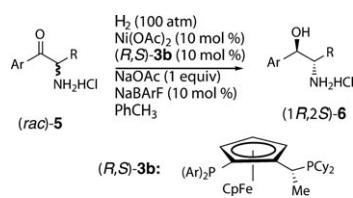
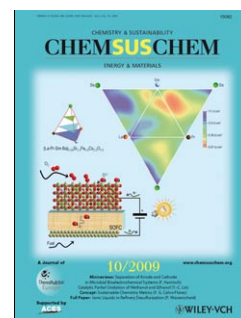
ChemSusChem
DOI: 10.1002/cssc.200900128

Metrics

F. G. Calvo-Flores*

Sustainable Chemistry Metrics

Green machine: There are many parameters that attempt to quantify the sustainability of chemical reactions or methods. This Concept article evaluates and interconnects these parameters, and describes their suitability for assessing different parts of complex processes. Particular emphasis is placed on the necessity of integrating these metrics into everyday practice.



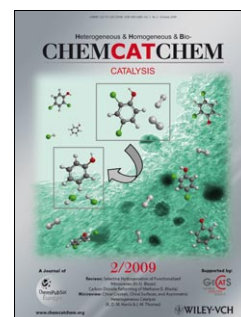
ChemCatChem
DOI: 10.1002/cctc.200900084

Asymmetric Catalysis

T. Hibino, K. Makino, T. Sugiyama, Y. Hamada*

Homogeneous Chiral Nickel-Catalyzed Asymmetric Hydrogenation of Substituted Aromatic α -Aminoketone Hydrochlorides through Dynamic Kinetic Resolution

Vive la résolution: Homogeneous chiral nickel complexes catalyze the asymmetric hydrogenation of substituted aromatic α -aminoketone hydrochlorides through dynamic kinetic resolution to afford medicinally important β -aminoalcohols with excellent diastereo- and enantioselectivities.



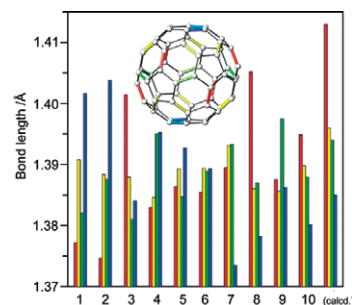


Fullerene Chemistry

N. V. Kozhemyakina, J. Nuss, M. Jansen*

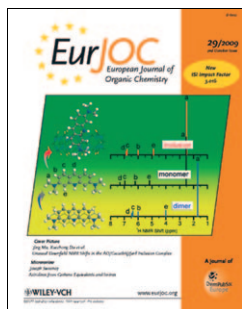
Synthesis and Crystal Structure of a New C_{60}^{2-} Fulleride: $[K(DB24C8)(DME)]_2C_{60} \cdot DME$

The “break-and-seal” approach was applied to synthesize the new fulleride $[K(DB24C8)(DME)]_2C_{60} \cdot DME$. The C_{60}^{2-} anion is disordered assuming two orientations. The distribution of the bond lengths within the fullerene has been discussed with respect to a Jahn–Teller distortion.



Eur. J. Inorg. Chem.

DOI: 10.1002/ejic.200900542

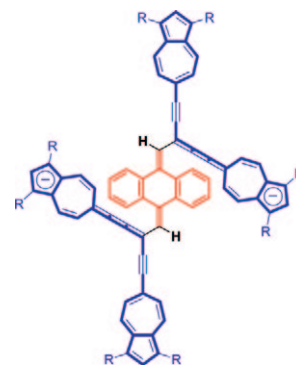


Stabilized Electrochromics

S. Ito,* T. Iida, J. Kawakami, T. Okujima, N. Morita

Towards the Preparation of Electrochromic Materials with Strong Absorption in the Near-Infrared Region: Synthesis and Redox Behavior of Azulene-Substituted Eneidyne Scaffolds Connected by a 9,10-Anthracenediyl Spacer

Eneidyne scaffolds connected by a 9,10-anthracenediyl spacer as a redox-active substructure with 6-azulenyl groups as π -electron-accepting groups in their periphery have been prepared. An electrochromic analysis revealed that these products developed strong absorption in the near-IR region corresponding to the formation of stabilized dianionic species.



Eur. J. Org. Chem.

DOI: 10.1002/ejoc.200900743