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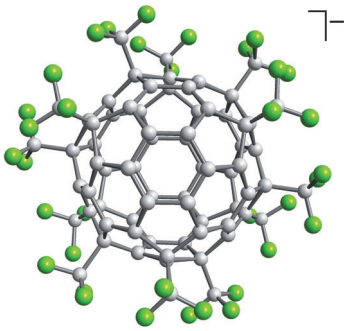
Fullerenes

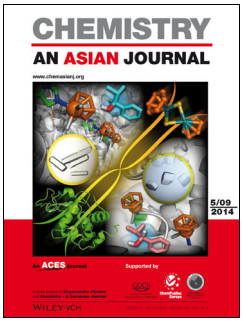
D. V. Konarev,* N. A. Romanova, R. A. Panin, A. A. Goryunkov, S. I. Troyanov, R. N. Lyubovskaya

Magnetic Coupling and Optical Properties of the S_6-Dodecakis(trifluoromethyl)fullerene Radical Anions in the Layered Salt $(PPN^+)[C_{60}(CF_3)_{12}^{\bullet-}]$

Anionic fullerenes: A salt of a multiply derivatized fullerene anion, namely, $(PPN^+)[C_{60}(CF_3)_{12}^{\bullet-}]$ (**1**; PPN^+ = bis(triphenylphosphine)-iminium), was obtained as single crystals (see figure; C gray, F green). The crystals of **1** exhibit a narrow EPR signal and rather strong antiferromagnetic coupling between the spins of the $C_{60}(CF_3)_{12}^{\bullet-}$ radical anions. It was assumed that this coupling is mediated by the network of short F···F contacts in the layers of radical anions.



Chem. Eur. J.
DOI: **10.1002/chem.201304850**

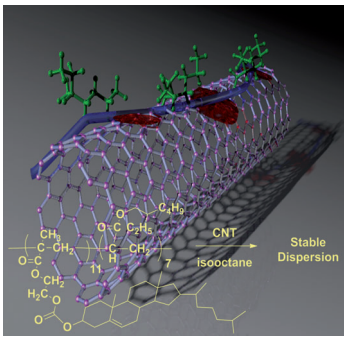


Nanotubes

J. Z. Nguendia, W. Zhong, A. Fleury, G. De Grandpré, A. Soldera, R. G. Sabat, J. P. Claverie*

Supramolecular Complexes of Multivalent Cholesterol-Containing Polymers to Solubilize Carbon Nanotubes in Apolar Organic Solvents

WitchcRAFT and wizardry: Copolymers of 2-ethylhexyl acrylate and cholesteryloxycarbonyl-2-hydroxymethacrylate (CEM), which contained pendant cholesterol units, formed strong supramolecular complexes with carbon nanotubes, thus preventing their aggregation and stabilizing concentrated colloidal solutions of MWNTs and SWNTs in isooctane, THF, and toluene.



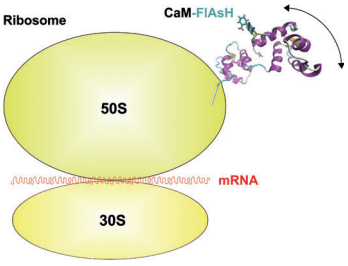
Chem. Asian J.
DOI: **10.1002/asia.201301687**

Protein Folding

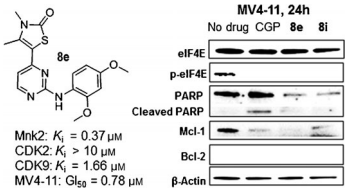
P. Lamprou, D. Kempe, A. Katranidis, G. Büldt, J. Fitter*

Nanosecond Dynamics of Calmodulin and Ribosome-Bound Nascent Chains Studied by Time-Resolved Fluorescence Anisotropy

All wrapped up: Coupling between polypeptide chain elongation and protein folding is a key issue in protein biosynthesis. We present an experimental approach to analyze the structural and dynamic properties of nascent polypeptide chains synthesized by a cell-free expression system with truncated peptides. For calmodulin we identified a pronounced interaction of the nascent chains with the synthesizing ribosome.



ChemBioChem
DOI: **10.1002/cbic.201400014**



Anticancer Drug Discovery

S. Diab, T. Teo, M. Kumarasiri, P. Li, M. Yu, F. Lam, S. K. C. Basnet, M. J. Sykes, H. Albrecht, R. Milne, S. Wang*

Discovery of 5-(2-(Phenylamino)pyrimidin-4-yl)thiazol-2(3*H*)-one Derivatives as Potent Mnk2 Inhibitors: Synthesis, SAR Analysis and Biological Evaluation

Highly active Mnk2 inhibitors: Mnk-related cancer biology is an area of intensive research, but its inhibitor discovery has lagged behind due to a lack of understanding of the protein structure. Herein we report the discovery of Mnk2 inhibitors (e.g. **8e**). These potent and selective inhibitors are extremely valuable for target validation and drug discovery.

ChemMedChem
DOI: **10.1002/cmdc.201300552**

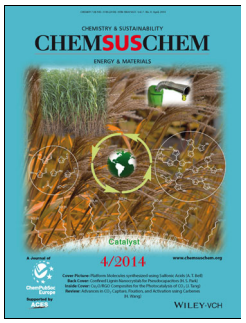
Renewable Materials

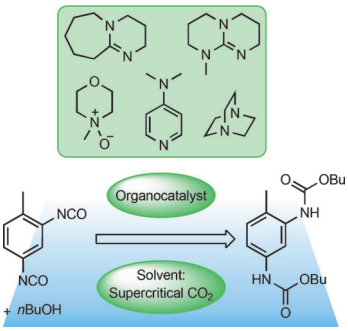
E. Cabane,* T. Keplinger, V. Merk, P. Hass, I. Burgert

Renewable and Functional Wood Materials by Grafting Polymerization Within Cell Walls

Towards smart wood-based materials: The natural wood structure is used as a support to graft vinyl and acrylate monomers. The hydroxyls groups from wood are functionalized with azo-based initiators, which can further initiate polymerization in/from the cell wall structure. The versatile technique yields wood-based materials with new functionalities, and opens the way to new utilizations for bulk wood.

ChemSusChem
DOI: **10.1002/cssc.201301107**





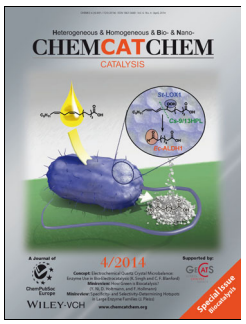
Kinetics

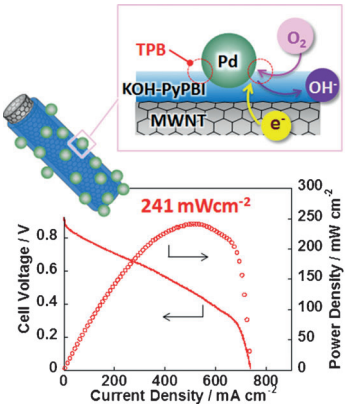
C. A. Smith, H. Cramail, T. Tassaing*

Insights into the Organocatalyzed Synthesis of Urethanes in Supercritical Carbon Dioxide: An In Situ FTIR Spectroscopic Kinetic Study

Back to the FTIR: The most efficient organocatalysts have been identified for the reaction of alcohols with isocyanates in supercritical CO_2 in a step towards a green process for polyurethane synthesis. The order of activity of the catalysts in supercritical CO_2 does not always follow that observed in conventional media.

ChemCatChem
DOI: **10.1002/cctc.201301002**





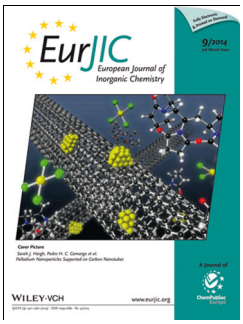
Oxygen Reduction Reaction

T. Fujigaya,* C. Kim, K. Matsumoto, N. Nakashima*

Palladium-Based Anion-Exchange Membrane Fuel Cell Using KOH-Doped Polybenzimidazole as the Electrolyte

The power of three: An anion-exchange membrane fuel cell showing maximum power density as high as 241 mW cm^{-2} has been developed using a palladium-based electrocatalyst loaded onto the surfaces of carbon nanotubes (see figure). Polybenzimidazole-wrapped carbon nanotubes were used to anchor the Pd nanoparticles, and the material was doped using KOH to form an ideal triple-phase boundary structure around palladium.

ChemPlusChem
DOI: **10.1002/cplu.201300377**

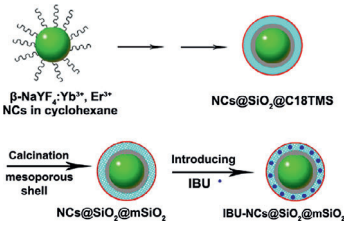


Upconversion Luminescence

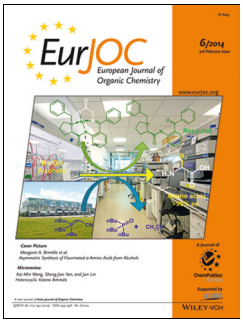
B. Liu, C. Li,* D. Yang, Z. Hou, P. Ma, Z. Cheng, H. Lian, S. Huang, J. Lin*

Upconversion-Luminescent Core/Mesoporous-Silica-Shell-Structured β-$NaYF_4$:Yb^{3+},Er^{3+}@SiO_2@mSiO_2 Composite Nanospheres: Fabrication and Drug-Storage/Release Properties

Biocompatibility in vitro, upconversion luminescence imaging, and capability of loading drug of multifunctional β-$NaYF_4$:Yb^{3+},Er^{3+}@SiO_2@mSiO_2 nanospheres were investigated.



Eur. J. Inorg. Chem.
DOI: **10.1002/ejic.201301460**

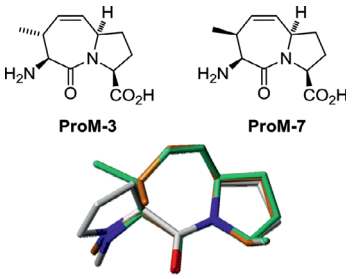


Secondary Structure Mimetics

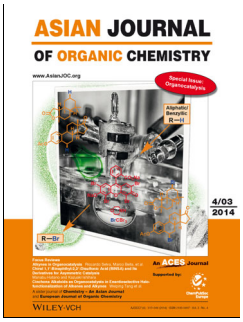
C. Reuter, M. Kleczka, S. de Mazancourt, J.-M. Neudörfl, R. Kühne, H.-G. Schmalz*

Stereoselective Synthesis of Proline-Derived Dipeptide Scaffolds (ProM-3 and ProM-7) Rigidified in a PPII Helix Conformation

Starting from amino acid building blocks with an olefin side chain, the diastereomeric scaffolds ProM-3 and ProM-7 are synthesized through peptide coupling and ring-closing metathesis. The conformationally defined dipeptide analogs are of interest as building blocks for the synthesis of modular PPII helix secondary structure mimetics as tailored inhibitors of protein–protein interactions.



Eur. J. Org. Chem.
DOI: **10.1002/ejoc.201301875**

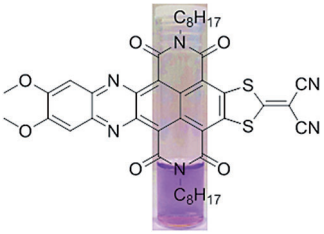


Push-Pull Dyes

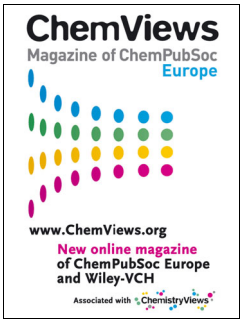
S. Maniam, H. F. Higginbotham, S.-X. Guo, T. D. M. Bell, E. I. Izgorodina, S. J. Langford*

A Redox Switchable Dihydrobenzo[*b*]pyrazine Push-Pull System

Push-me, pull-you: The synthesis and the photophysical properties of dissymmetrically core-extended naphthalene diimide dyes consisting of push-pull peripheral substituents were explored, with the desired system acting as a highly reversible and quantitative molecular redox switch.



Asian J. Org. Chem.
DOI: **10.1002/ajoc.201402015**

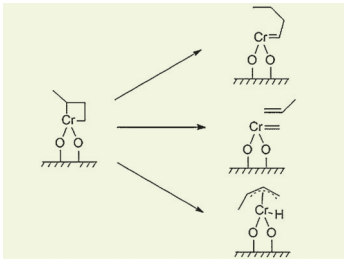


Reaction Mechanisms

E. Hums

Can DFT Calculations Describe Ethylene Polymerization?

Studies into ethylene polymerization over the Phillips catalyst started in the 1960s, yet despite this, and the reaction's commercial value, the initiation mechanism of polymerization is still unclear. Dr. Erich Hums, Germany, discusses the use of density functional theory (DFT) to study this mechanism and the need to use models of both the reaction and the molecules to obtain a full picture.



ChemViews magazine
DOI: **10.1002/chemv.201400010**