

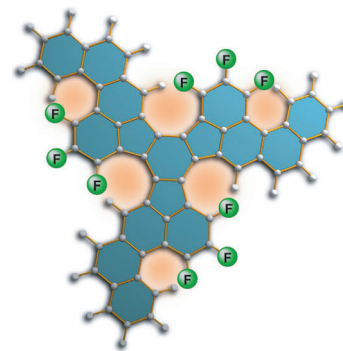


Fullerenes

M. Kabdulov, M. Jansen, K. Y. Amsharov*

Bottom-Up C₆₀ Fullerene Construction from a Fluorinated C₆₀H₂₁F₉ Precursor by Laser-Induced Tandem Cyclization

Wrap up: A specially fluorinated C₆₀ fullerene precursor (see figure) was converted to the target C₆₀ cage by laser ionization, resulting in highly selective HF elimination without any detectable side reactions or undesired fragmentation. The fully selective transformation to the target fullerene has been unambiguously demonstrated from a ¹³C-labeled precursor. In general the findings open new horizons for the synthesis of carbon-based nanomaterials, which cannot be obtained by any conventional alternative method.



Chem. Eur. J.
DOI: 10.1002/chem.201303838

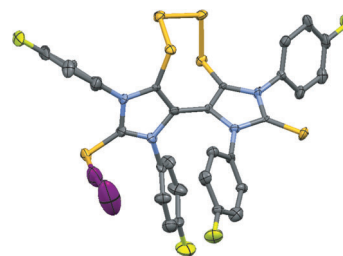


Charge Transfer

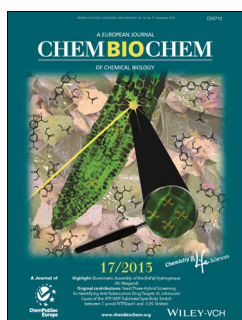
A. Mancini, M. C. Aragoni, A. L. Bingham, C. Castellano, S. L. Coles (née Huth), F. Demartin, M. B. Hursthouse, F. Isaia, V. Lippolis, G. Maninchedda, A. Pintus, M. Arca*

Reactivity of Fluoro-Substituted Bis(thiocarbonyl) Donors with Diiodine: An XRD, FT-Raman, and DFT Investigation

Spoke dithione: The reactions of 1,3,8,10-tetrakis(4'-fluorophenyl)-4,5,6,7-tetrathiocino[1,2-*b*:3,4-*b'*]diimidazolyl-2,9-dithione (**4**; see picture) and I₂ afforded only the spoke adducts **4**·I₂ and **4**·3 I₂·xCH₂Cl₂·(1-x)I₂ (x=0.70). The nature of the reaction products and the effect of fluorination were investigated under the prism of theoretical calculations carried out at the DFT level.



Chem. Asian J.
DOI: 10.1002/asia.201300693

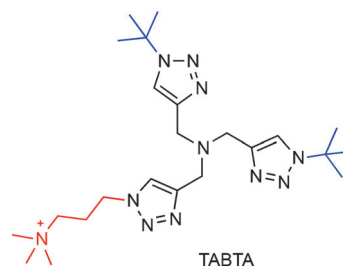


Proteomics

G. C. Rudolf, S. A. Sieber*

Copper-Assisted Click Reactions for Activity-Based Proteomics: Fine-Tuned Ligands and Refined Conditions Extend the Scope of Application

Business as usual: We introduce a customised ABPP click methodology that preserves the native protein fold, accelerates catalysis and is compatible with a greater range of buffers. Requiring no alteration of the established azide/alkyne CuAAC substrates, it is a powerful tool for use in biochemical and proteomic procedures without major alterations to the established protocols.



ChemBioChem
DOI: 10.1002/cbic.201300551

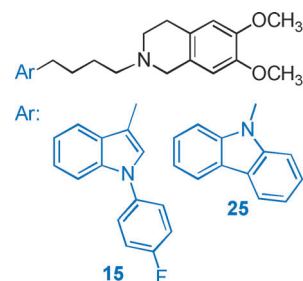


Antitumor Agents

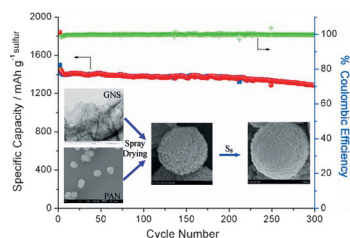
M. Niso, C. Abate,* M. Contino, S. Ferorelli, A. Azzariti, R. Perrone, N. A. Colabufo, F. Berardi

Sigma-2 Receptor Agonists as Possible Antitumor Agents in Resistant Tumors: Hints for Collateral Sensitivity

Collateral damage: We developed promising σ₂ ligands for alternative strategies against multidrug-resistant cancer. New high-affinity σ₂ agonists display antiproliferative activity in breast tumor cells; their interaction with P-gp generates higher activity in resistant than in parent cells (collateral sensitivity). Compounds co-administered with doxorubicin revert P-gp-mediated resistance.



ChemMedChem
DOI: 10.1002/cmdc.201300291



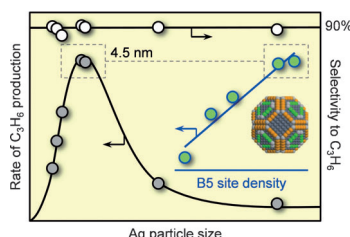
ChemSusChem
DOI: 10.1002/cssc.201300742

Lithium Ion Batteries

J. Wang,* L. Yin, H. Jia, H. Yu, Y. He, J. Yang, C. W. Monroe

Hierarchical Sulfur-Based Cathode Materials with Long Cycle Life for Rechargeable Lithium Batteries

The Peter PAN of Composites: Composite materials of porous pyrolyzed polyacrylonitrile-sulfur@graphene nanosheet (pPAN-S@GNS) are prepared through a bottom-up strategy. The superior rate capability and excellent cycling stability of pPAN-S@GNS is ascribed to the special spherical structure possessing an electronically conductive and rigid hierarchical framework.



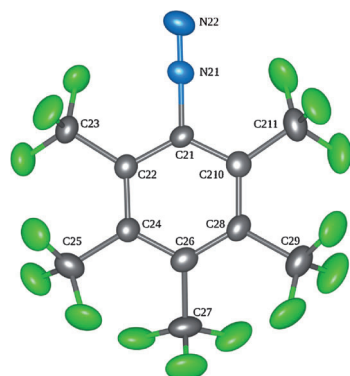
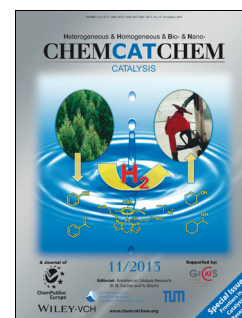
ChemCatChem
DOI: 10.1002/cctc.201300569

Hydrogenation

G. Vilé, D. Baudouin, I. N. Remediakis, C. Copéret,* N. López,* J. Pérez-Ramírez*

Silver Nanoparticles for Olefin Production: New Insights into the Mechanistic Description of Propyne Hydrogenation

The money metal! Silver selectively catalyzes the hydrogenation of propyne to propene, and the activity is maximal over 4.5 nm nanoparticles. The rate of propene production correlates well with the density of B5 sites, which suggests that the latter are potential active centers in the reaction. The hydrogenation follows an associative scheme, featuring the activation of H₂ directly on the propyne-silver-surface intermediates.



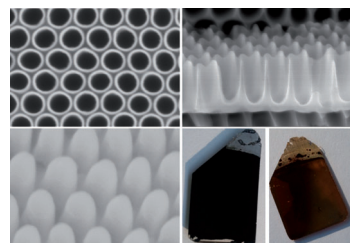
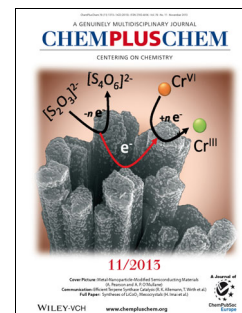
ChemPlusChem
DOI: 10.1002/cplu.201300160

Radical Reactions

A. Kütt,* F. Werner, I. Kaljurand, I. Leito, I. A. Koppel

Pentakis(trifluoromethyl)benzenediazonium Cation: A Useful Building Block for the Synthesis of Trifluoromethyl-Substituted Derivatives

The sterically crowded, highly electron-deficient diazonium salt C₆-(CF₃)₅N₂⁺ BF₄⁻ has been synthesized and sample dediazotization reactions were carried out. New compounds, C₆(CF₃)₅I, C₆(CF₃)₅NO₂, and C₆(CF₃)₅NO were isolated and identified. Also, a more convenient route to C₆(CF₃)₅NH₂ that gave good yield was achieved.



ChemElectroChem
DOI: 10.1002/celec.201300133

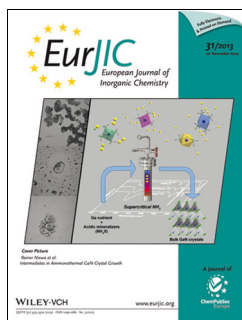
Ordered Arrays

J. E. Yoo, K. Lee, P. Schmuki*

Templating Using Self-Aligned TiO₂ Nanotube Stumps: Highly Ordered Metal and Polymer Bumped Arrays

Moth-eye structures: Highly self-ordered TiO₂ nanotube stump (TiNTS) layers anodically grown in a HF/H₃PO₄ electrolyte are presented. The resulting low-aspect-ratio tubes can easily be conformally filled by vacuum-sputter deposition or by melt-casting. Removing the TiO₂ nanotube template results in highly ordered "bumped" metal arrays that are promising for applications, such as for "moth-eye" anti-reflection layers.



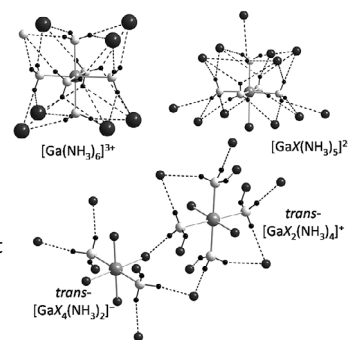


Callium Nitride Growth

S. Zhang, F. Hintze, W. Schnick, R. Niewa*

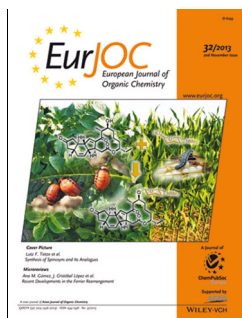
Intermediates in Ammonothermal GaN Crystal Growth under Ammonoacidic Conditions

Although the ammonothermal method holds great promise for the growth of high-quality GaN single crystals, the growth mechanism is not fully understood. This work focuses on the intermediate compounds in the growth of GaN crystals with acidic mineralizers in supercritical NH_3 . The formation conditions, crystal structures, hydrogen bonding, thermal behavior, and coordination chemistry are discussed.



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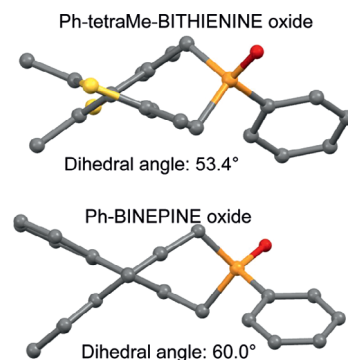


Chiral Heterophosphepines

L. Vaghi, T. Benincori, R. Cirilli, E. Alberico, P. R. Mussini, M. Pierini, T. Pilati, S. Rizzo, F. Sannicolò*

Ph-tetraMe-Bithienine, the First Member of the Class of Chiral Heterophosphepines: Synthesis, Electronic and Steric Properties, Metal Complexes and Catalytic Activity

Ph-tetraMe-Bithienine, an unknown phosphepine containing a 3,3'-bithiophene scaffold, and its oxide have been synthesized, resolved into antipodes, and structurally and electronically characterized. The enantioselective ability and catalytic activity of metal complexes of the ligand were investigated in C=C hydrogenation reactions and C-C bond-forming reactions.



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DOI: 10.1002/ejoc.201301098

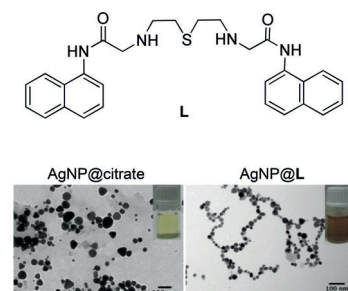


Molecular Probes

A. Fernández-Lodeiro, J. Fernández-Lodeiro, C. Núñez,* R. Bastida, J. L. Capelo, C. Lodeiro*

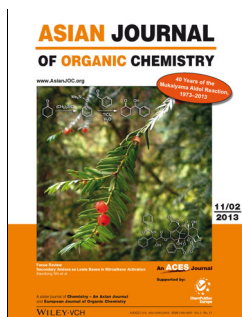
Polyamine Ligand-Mediated Self-Assembly of Gold and Silver Nanoparticles into Chainlike Structures in Aqueous Solution: Towards New Nanostructured Chemosensors

1D Nanochain formation: The binding ability of a polyamine molecular linker (L^{2-}) bearing different functional groups, which favors the self-assembling of silver (AgNPs) and gold nanoparticles (AuNPs) into 1D nanochains in aqueous solution was explored. UV/Vis spectrophotometry and TEM were used to determine time-dependent structural changes associated with these 1D structure formations. Sensing of Hg^{2+} using AgNPs@(L^{2-}) and AuNPs@(L^{2-}) assemblies was also carried out in aqueous solution.



ChemistryOpen

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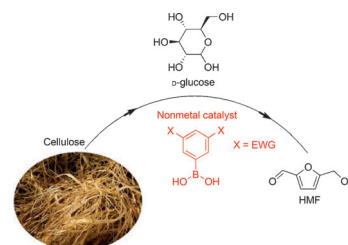


Biomass Conversion

D. H. Lukamto, P. Wang, T.-P. Loh*

Catalytic Conversion of Inert Carbohydrates into Platform Chemical 5-Hydroxymethylfurfural Using Arylboronic Acids

Looking forward: As fossil fuels deplete, 5-hydroxymethylfurfural (HMF) will play an important role in securing future energy and chemical feedstock needs as it is obtainable from renewable resources such as glucose and cellulose. We report a group of nonmetal Lewis-acid arylboronic acids that catalyse the formation of HMF in 3-ethyl-1-methyl-3 H-imidazol-1-ium chloride ([EMIM]Cl) from glucose and cellulose. EWG = electron-withdrawing group.



Asian J. Org. Chem.

DOI: 10.1002/ajoc.201300185