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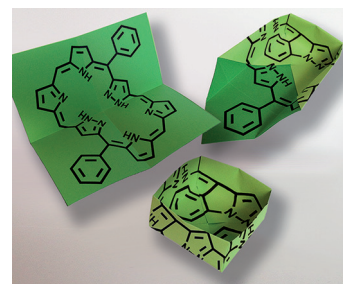


Macrocycles

A. Vogel, S. Dechert, M. John, C. Brückner,* F. Meyer*

Siamese-Twin Porphyrin Origami: Oxidative Fusing and Folding

Oxidation of the twisted *meso*-phenyl-substituted Siamese-twin porphyrin, a pyrazole-containing expanded porphyrin, with 2,3-dichloro-5,6-dicyano-1,4-benzochinone, led to the formation of two successive $N^{pz}-C^{o-Ph}$ bonds forming pyrazoloindole building blocks with concomitant eversion and folding of the macrocycle into a boxlike structure (see figure) that is, like the parent compound, nonmacrocycle aromatic.



Chem. Eur. J.
DOI: 10.1002/chem.201503699

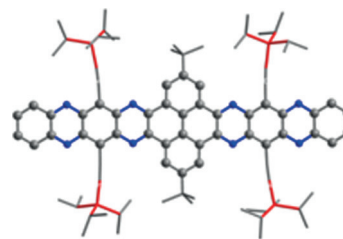


Azaacenes

Z. Wang, J. Miao, G. Long, P. Gu, J. Li, N. Aratani, H. Yamada, B. Liu,* Q. Zhang*

Full Characterization and Photoelectrochemical Behavior of Pyrene-fused Octaazadecacene and Tetraazaocetene

Bridging the gap: Pyrene-bridged octaazadecacene and tetraazaocetene were successfully synthesized and characterized. Their n-type semiconductor activity was investigated by photoelectrochemical tests.



Chem. Asian J.
DOI: 10.1002/asia.201501276



Supramolecular Polymers

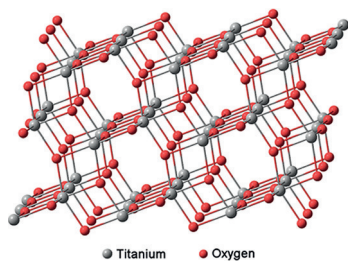
M. B. Baker, R. P. J. Gosens, L. Albertazzi, N. M. Matsumoto, A. R. A. Palmans, E. W. Meijer*

Exposing Differences in Monomer Exchange Rates of Multicomponent Supramolecular Polymers in Water

Tracking your monomers: Differences in behavior and dynamics are revealed by labeling bioactive monomers and tracking them within a multicomponent supramolecular polymer. These methods and observations are essential to facilitate control over monomer distribution and location in future generations of supramolecular biomaterials.



ChemBioChem
DOI: 10.1002/cbic.201500606



Thin Films

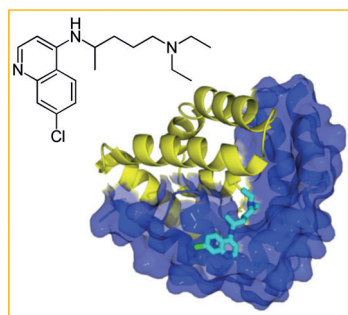
J. J. Gallardo, J. Navas,* D. Zorrilla, R. Alcántara, D. Valor, A. Sánchez-Coronilla, N. C. Hernández, C. Fernández-Lorenzo, J. Martín-Calleja

A Study of Overheating of Thermostatically Controlled TiO₂ Thin Films by Using Raman Spectroscopy

Hot results! A classic Raman spectroscopy method is applied to measure the temperature of thermostatically controlled TiO₂ thin films. Overheating above the thermostatically controlled temperature is observed. DFT-periodic calculations show that the anatase (101) surface has a smaller band gap than bulk anatase. Therefore, it can absorb the laser radiation (532 nm) used in the experimental setup. Part of the absorbed photon energy transfers into phonon energy, heating the samples.

ChemPhysChem

DOI: 10.1002/cphc.201500933



Malaria Therapeutics

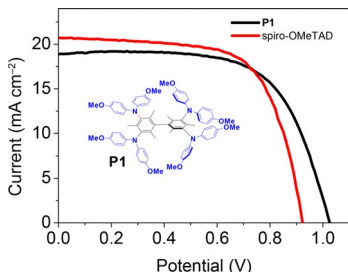
B. P. Huta, M. R. Mehlenbacher, Y. Nie, X. Lai, C. Zubieta,* F. Bou-Abdallah,* R. P. Doyle*

The Lysosomal Protein Saposin B Binds Chloroquine

Unravelling the mystery of CQ: The full extent of chloroquine (CQ) pharmacology in humans remains unclear. Herein, using isothermal titration calorimetry (ITC) and fluorescence quenching experiments, we demonstrate that the lysosomal protein saposin B (sapB), critical for select lipid degradation, binds CQ with implications for CQ function and toxicity. Additionally, the X-ray crystal structure of sapB–CQ, the first complete crystal structure of sapB with a small-molecule substrate, shows one molecule of CQ bind to the sapB dimer.

ChemMedChem

DOI: 10.1002/cmdc.201500494



Perovskite Solar Cells

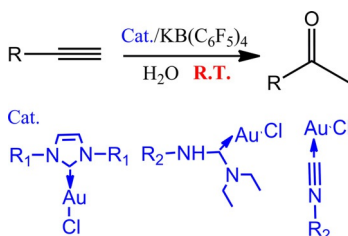
Y.-D. Lin, B.-Y. Ke, K.-M. Lee,* S. H. Chang, K.-H. Wang, S.-H. Huang, C.-G. Wu,* P.-T. Chou, S. Jhulki, J. N. Moorthy, Y. J. Chang, K.-L. Liao, H.-C. Chung, C.-Y. Liu, S.-S. Sun,* T. J. Chow*

Hole-Transporting Materials Based on Twisted Bimesitylenes for Stable Perovskite Solar Cells with High Efficiency

Stability trumps efficiency: Three hole-transport materials based on a bimesitylene core presented, and their application in perovskite solar cells is evaluated. An overall power conversion efficiency of up to 12.11% is achieved with these new materials and stability studies show that the long-term stability of devices using the new materials is superior to commonly used spiro-OMeTAD.

ChemSusChem

DOI: 10.1002/cssc.201501392



Carbenes

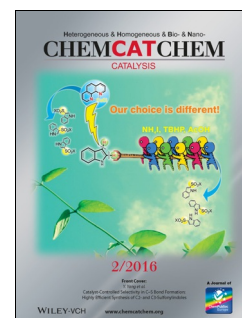
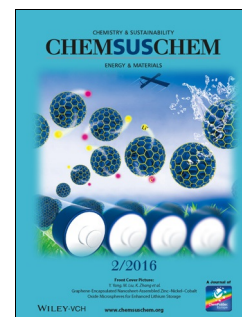
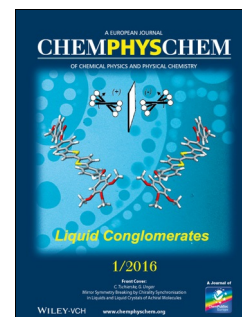
Y. Xu, X. Hu,* S. Zhang, X. Xi, Y. Wu*

Room-Temperature Hydration of Alkynes Catalyzed by Different Carbene Gold Complexes and their Precursors

Turn down the heat: The room-temperature hydration of alkynes is achieved using only 0.5 mol% NHC(IPr)-AuCl/KB(C₆F₅)₄ (NHC(IPr) = 1,3-bis(2,6-diisopropylphenyl)imidazol-2-ylidene) with excellent yields. The catalyst system can be reused simply without a noticeable loss of catalytic activity.

ChemCatChem

DOI: 10.1002/cctc.201501065





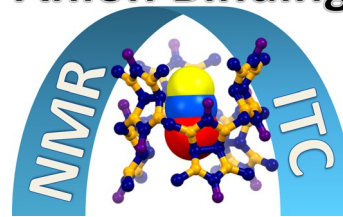
Supramolecular Chemistry

V. Havel, V. Sindelar*

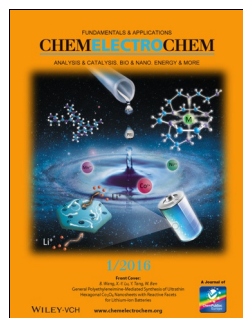
Anion Binding Inside a Bambus[6]uril Macrocycle in Chloroform

All goes in: A bambusuril macrocycle includes anions of different sizes inside its cavity forming stable supramolecular complexes in chloroform. Isothermal titration calorimetry and NMR measurements revealed the size-selectivity of the macrocycle and also its ability to act as a sensor for detection and quantification mixtures of inorganic anions.

Anion Binding



ChemPlusChem
DOI: 10.1002/cplu.201500345

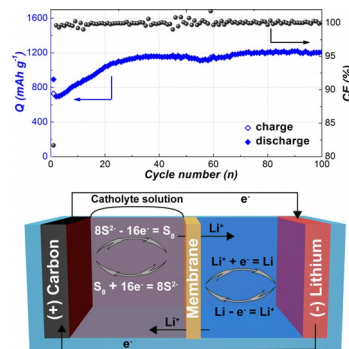


Batteries

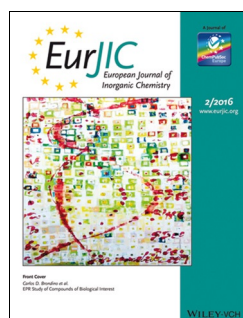
L. Wang, Y. Zhao, M. L. Thomas, A. Dutta, H. R. Byon*

Sulfur-Based Catholyte Solution with a Glass-Ceramic Membrane for Li-S Batteries

Shuttle suppression: A parasitic internal-shuttle effect associated with intermediates of lithium polysulfides is prevented in a catholyte-based lithium-sulfur (Li-S) battery using a glass-ceramic membrane. The highly reversible Li-S electrochemistry provides great capacity retention and Coulombic efficiency.



ChemElectroChem
DOI: 10.1002/celc.201500342

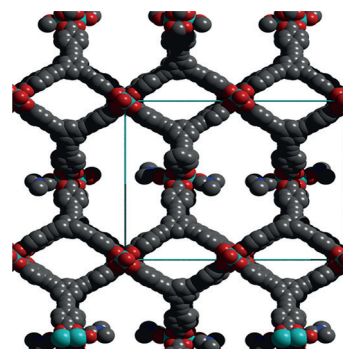


Coordination Polymer Topology

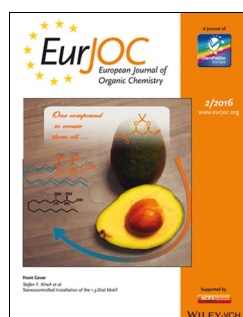
N. Zhu, D. Sensharma, P. Wix, M. J. Lennox, T. Dören, W.-Y. Wong, W. Schmitt*

Framework Isomerism: Highly Augmented Copper(II)-Paddlewheel-Based MOF with Unusual (3,4)-Net Topology

An uncommon, less symmetrical, (3,4)-connected net topology that represents a rare framework isomer of the extensively studied {Cu₂}-based pto and tbo (platinum oxide or twisted boracite) analogues is reported. Computational analyses suggest that the observed structure gives rise to a surface area that is greater than 3500 m²/g despite the triple-interpenetrated nature of the compound.



Eur. J. Inorg. Chem.
DOI: 10.1002/ejic.201501194

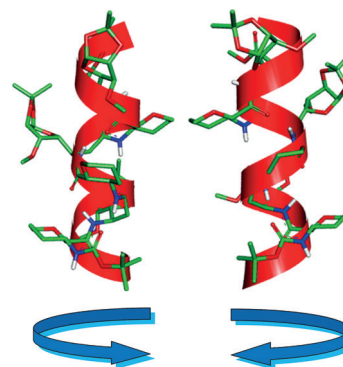


Enantiomeric 12/10-Helices

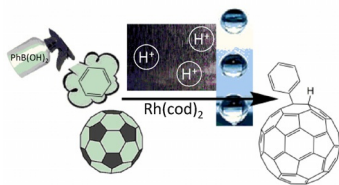
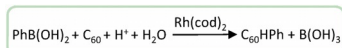
G. V. M. Sharma,* H. Ravindranath, A. Bhaskar, K. Sirisha, K. V. S. Ramakrishna, A. V. S. Sarma*

Design and Synthesis of Diastereomeric β³-Peptides from (R,R)/(S,S)-APyC and (R)/(S)-β³-Caa: Determination of Enantiomeric Handedness

Diastereomeric β-peptides derived from alternating (R,R)/(S,S)-APyC and (R)/(S)-β-Caa display enantiomeric helical structures that are stabilized by five-membered electrostatic interactions.



Eur. J. Org. Chem.
DOI: 10.1002/ejoc.201501053



ChemistryOpen

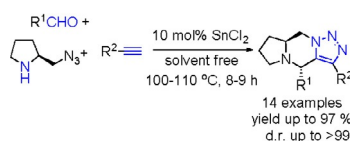
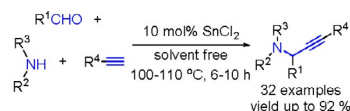
DOI: 10.1002/open.201500093

Computational Chemistry

J. P. Martínez, M. Solà, A. Poater*

On the Reaction Mechanism of the Rhodium-Catalyzed Arylation of Fullerene (C_{60}) with Organoboron Compounds in the Presence of Water

Density functional theory (DFT) calculations were used to investigate how organoboron species arylate C_{60} in rhodium-based catalysis assisted by water as a source of protons. The computational results support previously determined experimental data that show that the addition of the phenyl group and the hydrogen atom in C_{60} occurs at the [6,6] bond.

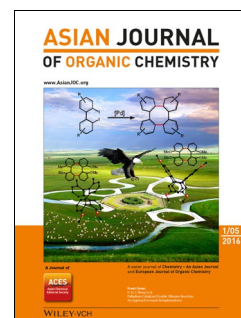


Multicomponent Reactions

S. N. Afraj, C. Chen*

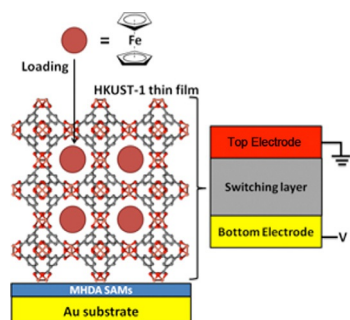
Tin(II) Chloride Catalyzed Multicomponent Synthesis of Propargylamines and Intramolecular [3+2] Cycloaddition

AAA-rated strategy: A method for the synthesis of propargylamines by a three-component reaction of aldehydes, amines, and alkynes (A^3 -coupling) followed by a [3+2] cycloaddition for the preparation of 4,6,7,8,8a,9-hexahydropyrrolo[1,2-a][1,2,3]triazolo[1,5-d]pyrazines is reported. The coupling uses SnCl_2 as the catalyst under solvent-free conditions to generate the desired products in good to excellent yields with high diastereoselectivity.



Asian J. Org. Chem.

DOI: 10.1002/ajoc.201500471

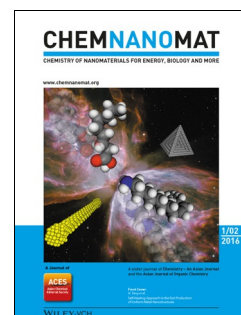


Metal–Organic Frameworks

Z. Wang, D. Nminibapiel, P. Shrestha, J. Liu, W. Guo, P. G. Weidler, H. Baumgart,* C. Wöll,* E. Redel*

Resistive Switching Nanodevices Based on Metal–Organic Frameworks

Ferrocene-loaded SURMOF (surface-anchored metal–organic framework) thin films with well-defined thicknesses in the nm-range were used to prepare resistive switching nanodevices. The results showed that such nanodevices exhibited promising performance, which opens the great potential of the SURMOF thin films for the implementation of novel and scalable active materials for the next generation of digital processing and organic-based microelectronic devices.



ChemNanoMat

DOI: 10.1002/cnma.201500143



ChemViews magazine

DOI: 10.1002/chemv.201500105

Energy

A. Deveson, N. Armadori

The Sun-Powered Civilization

In "Behind the Science", ChemViews Magazine gives readers a peek behind the scenes of a research article. This time, Anne Deveson, Chemistry – A European Journal, talks to Nicola Armadori from the National Research Council (CNR) in Bologna, Italy, about the current status and future perspectives of solar electricity and solar fuels.

