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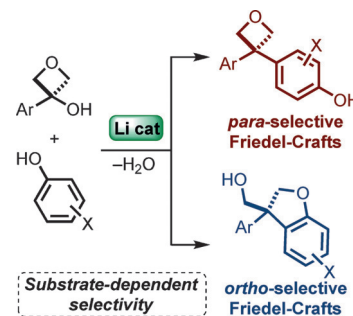


Oxygen Heterocycles

R. A. Croft, J. J. Mousseau, C. Choi, J. A. Bull*

Structurally Divergent Lithium Catalyzed Friedel–Crafts Reactions on Oxetan-3-ols: Synthesis of 3,3-Diaryloxetanes and 2,3-Dihydrobenzofurans

Double the benefit: 3,3-Diaryloxetanes are prepared as isosteres of benzophenones and diarylmethanes, through inexpensive lithium catalyzed Friedel–Crafts reaction (see figure). Complementary dihydrobenzofurans are also prepared, highly selectively, with the product dependent on the substrate regioselectivity. The oxetane products are stable to further derivatization reactions, suitable for incorporation into drug discovery efforts.



Chem. Eur. J.
DOI: 10.1002/chem.201604031

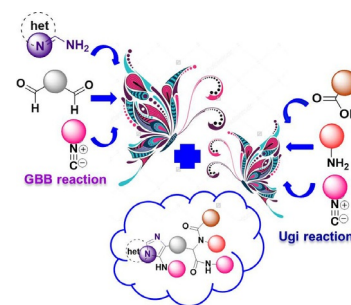


Multicomponent Reactions

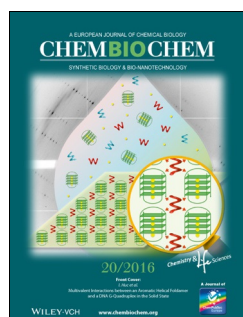
T. Kaur, R. N. Gautam, A. Sharma*

Assembly of New Heterocycles through an Effective Use of Bisaldehydes by Using a Sequential GBB/Ugi Reaction

Cut of your GBB: A facile assembly of new imidazo[2,1-b][1,3]thiazinyl/benzothiazoyl-phenyl)benzamide scaffolds through a two-step GBB/Ugi reaction sequence is described. The highlights of this procedure are the retention of the aldehyde group following the GBB reaction without the need for additional protection/deprotection steps, and its operational simplicity in the absence of any catalyst.



Chem. Asian J.
DOI: 10.1002/asia.201601009

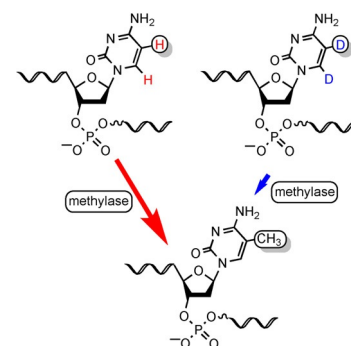


Epigenetics

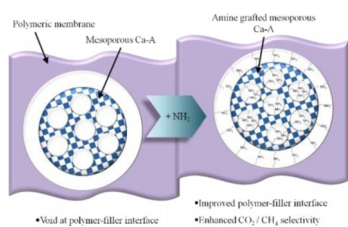
C. B. Woodcock, E. A. Ulashchik, N. E. Poopko, V. V. Shmanai, N. O. Reich,* M. S. Shchepinov*

Rational Manipulation of DNA Methylation by Using Isotopically Reinforced Cytosine

Heavy cytosine reveals the truth: Deuterated cytosine decreases the rate of methylation by the human DNA methyltransferase (DNMT 3A) and the bacterial cytosine methyltransferase M.HhaI. This implicates the β -elimination step as contributing to catalytic rate-limiting.



ChemBioChem
DOI: 10.1002/cbic.201600393



ChemPhysChem

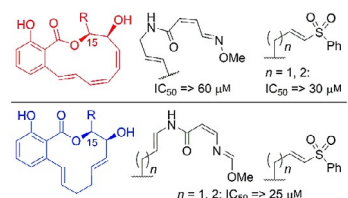
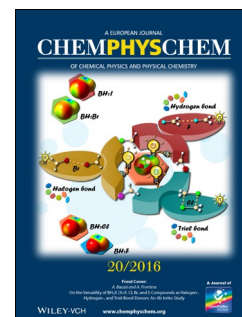
DOI: 10.1002/cphc.201600561

Zeolites

T. H. Nguyen, H. Gong, S. S. Lee, T.-H. Bae*

Amine-Appended Hierarchical Ca-A Zeolite for Enhancing CO_2/CH_4 Selectivity of Mixed-Matrix Membranes

Mmm...: A new amine-grafted hierarchical mesoporous Ca-A zeolite is used for the first time to fabricate mixed-matrix membranes with enhanced filler/polymer interaction and improved CO_2/CH_4 selectivity.



ChemMedChem

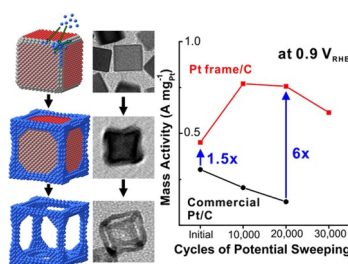
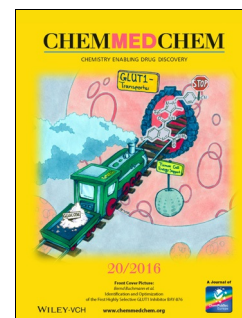
DOI: 10.1002/cmdc.201600024

Anticancer Agents

C. M. Schneider, W. Li, K. Khownium, G. H. Lushington, G. I. Georg*

Enantiospecific Synthesis and Cytotoxicity Evaluation of Oximidine II Analogues

Lacking cytotoxicity: Oximidine analogues carrying a C15 allylic side chain or a vinyl sulfone group in place of an enamide moiety were found to have lost cytotoxicity. Computationally designed simplified oximidine analogues that feature a less complex and more flexible macrocycle were also absent of cytotoxic properties. These results highlight key features of this compound class for anticancer activity.



ChemSusChem

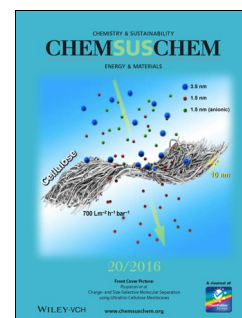
DOI: 10.1002/cssc.201600984

Electrocatalysis

J. Park, H. Wang, M. Vara, Y. Xia*

Platinum Cubic Nanoframes with Enhanced Catalytic Activity and Durability Toward Oxygen Reduction

Structure matters: Pt nanoframes with a highly open structure are synthesized and demonstrated as a new class of catalysts toward oxygen reduction with enhanced activity and durability relative to Pt/C. The improvement is attributed to the frame-like structure, which is unique in suppressing both the detachment and aggregation of catalytic particles owing to the significantly enhanced interaction with carbon support.



ChemCatChem

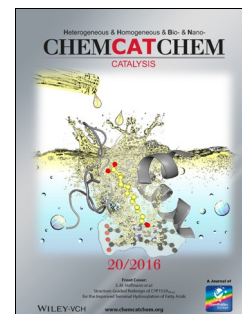
DOI: 10.1002/cctc.201600606

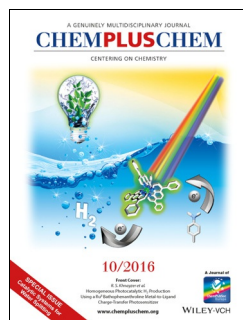
Ring Opening

W. Liu, Y. Sun, H. Zhao, B. Li, S. Chen*

Ytterbium(III) Trifluoromethanesulfonate Catalyzed Ring-Opening $\text{C}(\text{sp}^3)\text{-N}$ Bond Formation of Benzoxazoles with Propargylic Alcohols

Twists and benz: A novel ytterbium(III) trifluoromethanesulfonate $[\text{Yb}(\text{OTf})_3]$ -catalyzed ring-opening $\text{C}(\text{sp}^3)\text{-N}$ bond formation reaction of benzoxazole with propargylic alcohols is developed. This new transformation makes it possible to construct highly functionalized substituted benzenes bearing aldehyde, propargylamine, and hydroxy groups from simple components with high atom economy.



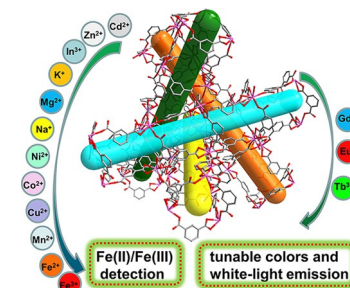


Metal–Organic Frameworks

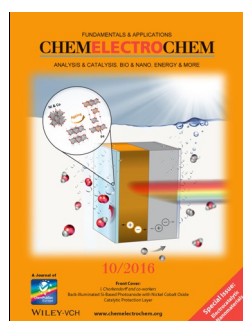
Z.-Y. Zhou, Y.-H. Han, X.-S. Xing, S.-W. Du*

Microporous Lanthanide Metal–Organic Frameworks with Multiple 1D Channels: Tunable Colors, White-Light Emission, and Luminescent Sensing for Iron(II) and Iron(III)

Channel swap: A series of isostructural 3D microporous lanthanide metal–organic frameworks (MOFs) with multiple 1D channels were prepared under solvothermal conditions. Upon cation exchange, tunable luminescence and white-light emission were achieved by adjusting the relative amount of Eu^{3+} and Tb^{3+} ions encapsulated in the Gd framework (see figure). Moreover, the Eu framework can be explored as a potential luminescent material for sensing metal ions, especially Fe^{2+} and Fe^{3+} .



ChemPlusChem
DOI: 10.1002/cplu.201600141

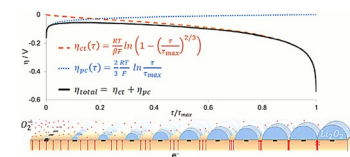


Lithium–Oxygen Cells

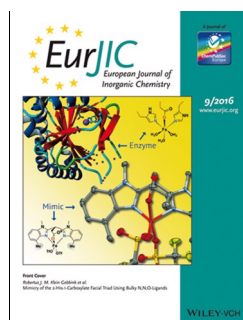
A. Rinaldi, O. Wijaya, H. Hoster*

Lithium–Oxygen Cells: An Analytical Model to Explain Key Features in the Discharge Voltage Profiles

Model behaviour: Voltage profiles for constant-current discharge $\text{Li}-\text{O}_2$ cells can be modelled with a simple analytical expression, specifically, the weighted sum of two logarithmic curves with opposite abscissae. The logarithms result from the Nernst and Tafel (or Butler–Volmer) equations, which are used to describe the overpotentials resulting from the concentration and the production rate of dissolved O_2^- , respectively. For the first time, this appropriately considers the possibility and the effects of varying O_2^- concentrations over the course of the discharge.



ChemElectroChem
DOI: 10.1002/celec.201600184

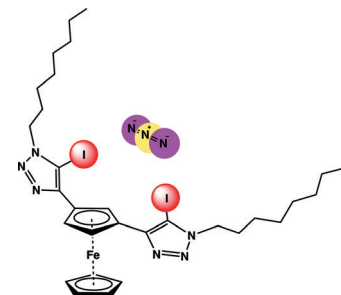


Ferrocene Receptors

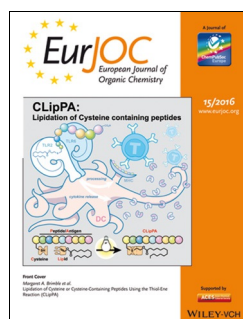
J. Y. C. Lim, P. D. Beer*

A Halogen Bonding 1,3-Disubstituted Ferrocene Receptor for Recognition and Redox Sensing of Azide

The first halogen bonding redox-active ferrocene receptor that binds and electrochemically senses azide selectively in solution is reported, which shows greatly improved sensitivity and discrimination compared to its hydrogen bonding analogue.



Eur. J. Inorg. Chem.
DOI: 10.1002/ejic.201600805

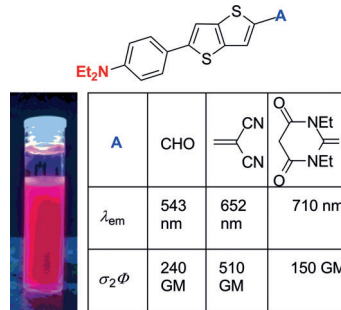


Two-Photon Absorption

M. M. M. Raposo*, C. Herbivo, V. Hugues, G. Clermont, M. C. R. Castro, A. Comel, M. Blanchard-Desce*

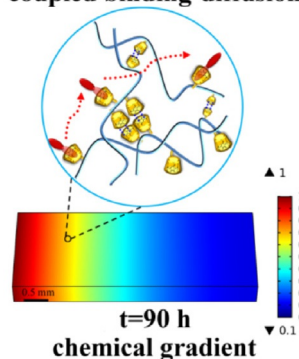
Synthesis, Fluorescence, and Two-Photon Absorption Properties of Push–Pull 5-Arylthieno[3,2-*b*]thiophene Derivatives

Fusion makes it better! Push–pull compounds built from a thienothio- π -connector have been synthesized. Due to improved rigidity and conjugation, derivatives with strong donor end groups have been shown to combine strong and tunable fluorescence with large two-photon absorption in the NIR region. These dyes provide a route towards bright fluorophores spanning the visible region to the NIR.



Eur. J. Org. Chem.
DOI: 10.1002/ejoc.201600806

coupled binding-diffusion



ChemistryOpen

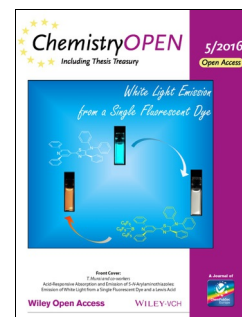
DOI: 10.1002/open.201600030

Supramolecular Chemistry

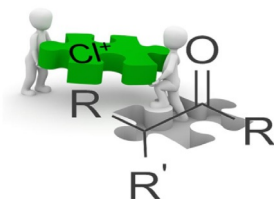
X. Luan, Y. Zhang,* J. Wu, P. Jonkheijm, G. Li, L. Jiang, J. Huskens,* Q. An*

Bio-inspired Dynamic Gradients Regulated by Supramolecular Bindings in Receptor-Embedded Hydrogel Matrices

Dynamic gradients: The kinetics of supramolecular bindings is employed in a diffusion process to regulate molecular spatial-temporal distributions. The diffusible guest, 4-aminoazobenzene, quickly and reversibly binds to matrices-bound cyclodextrin during diffusion and generates steeper gradients than regular diffusion. Weakened bindings induced by UV irradiation extend the gradients. A gradient within 4 mm could be preserved for up to 90 h through the coupled “binding–diffusion” process.



Asymmetric Organocatalysis



Asian J. Org. Chem.

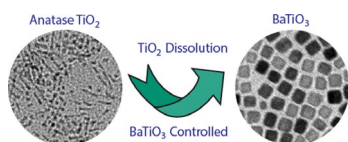
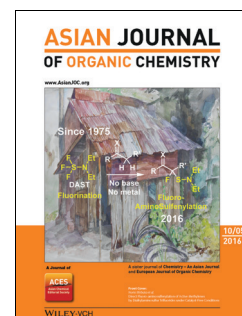
DOI: 10.1002/ajoc.201600404

Asymmetric Organocatalysis

M. Gómez-Martínez, D. A. Alonso, I. M. Pastor, G. Guillena, A. Baeza*

Organocatalyzed Assembly of Chlorinated Quaternary Stereogenic Centers

The missing piece: The construction of chlorinated quaternary stereocenters is a challenge for organic chemists. The growth in organocatalysis has prompted the exploration of such a strategy for this purpose. This review focuses on state-of-the-art research in the area of organocatalysis for the construction of chlorinated quaternary stereocenters and presents both successful examples and limitations that still need to be overcome.



ChemNanoMat

DOI: 10.1002/cnma.201600164

High Dielectric Constant Materials

M. Vara, M. Chi, Y. Xia*

Facile Synthesis of BaTiO₃ Nanocubes with the Use of Anatase TiO₂ Nanorods as a Precursor to Titanium Hydroxide

A controlled synthesis of BaTiO₃ nanocubes was developed through a hydrothermal method using preformed TiO₂ nanorods and growth-directing capping agents in an open-air environment, generating cubes that could be easily purified and isolated.



ChemViews magazine

DOI: 10.1002/chemv.201600065

Chemistry and Art

V. Koester, R. Valluzzi

Art Inspired by Materials Science

In an amazing career, Dr. Regina Valluzzi has moved from materials sciences at the Massachusetts Institute of Technology (MIT) via a nanotech start-up to visual art. In ChemViews Magazine, she explains what inspired her to go from science to art in her professional life, and how she communicates scientific concepts in her paintings.

