

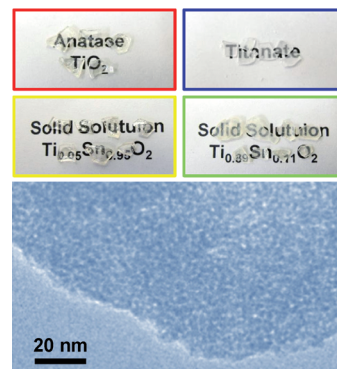


Assembled Nanomaterials

Y. Oaki,* K. Nakamura, H. Imai*

Homogeneous and Disordered Assembly of Densely Packed Titanium Oxide Nanocrystals: An Approach to Coupled Synthesis and Assembly in Aqueous Solution

A homogeneous and disordered assembly of densely packed titanium oxides nanocrystals 2–3 nm in size is formed by means of aqueous-solution processes at room temperature. The assembled nanocrystals form macroscopic transparent objects 2–5 mm in size. Formation of the hydrated layer on the surface of nanocrystals facilitates the generation of macroscopic objects through the inhibition of inhomogeneous and disordered aggregates.



Chem. Eur. J.
DOI: 10.1002/chem.201103585

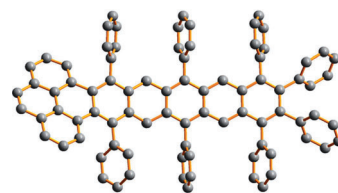


Acenes

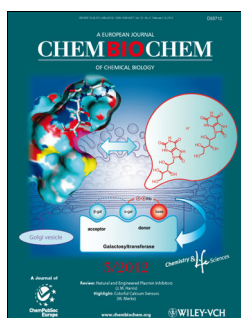
J. Xiao, C. D. Malliakas, Y. Liu, F. Zhou, G. Li, H. Su, M. G. Kanatzidis, F. Wudl, Q. Zhang*

“Clean Reaction” Strategy to Approach a Stable, Green Heptatwistacene Containing a Single Terminal Pyrene Unit

Let's twist again: A “clean reaction” strategy based on thermally eliminating lactam bridges from a soluble acene precursor through a retro-Diels–Alder reaction gives a new, stable, green heptatwistacene (see structure). The molecule has a twist angle of 23.49°, is very stable even in air, and has an optical band gap of 1.82 eV.



Chem. Asian J.
DOI: 10.1002/asia.201100910

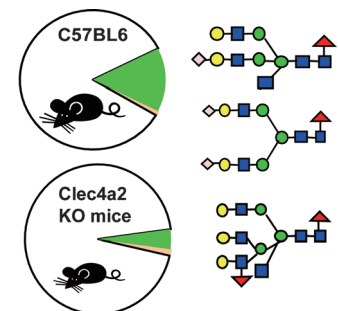


Glycosides

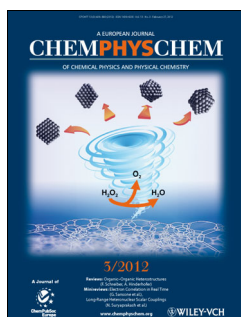
M. Amano,* R. Hashimoto, S.-I. Nishimura*

Effects of Single Genetic Damage in Carbohydrate-Recognizing Proteins in Mouse Serum N-Glycan Profile Revealed by Simple Glycotyping Analysis

Glycotyping of KO mice: Glycotyping analysis of serum N-glycomes from gene-knockout mice that show no significant phenotype or abnormality can provide highly informative data to facilitate further comprehensive discussion of functions of cell surface C-type lectins in the maintenance of homeostatic balance of general immune system.



ChemBioChem
DOI: 10.1002/cbic.201100595

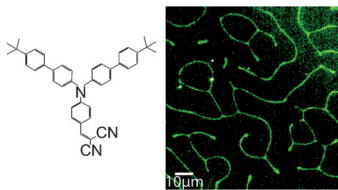


Organic Nanoparticles

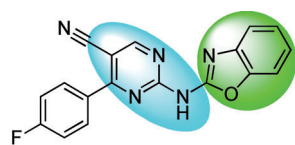
A. Gaiduk, M. Yorulmaz, E. Ishow, M. Orrit*

Absorption, Luminescence, and Sizing of Organic Dye Nanoparticles and of Patterns Formed Upon Dewetting

Labyrinthine: Quantitative insight into photophysics of organic dye nanoparticles and the dewetting induced patterns formed from a push–pull triarylamine dye is obtained by using simultaneous absorption and fluorescence microscopy (see picture). The quantum yield of organic nanoparticles and the number of molecules forming the nanoparticles and patterns are deduced.



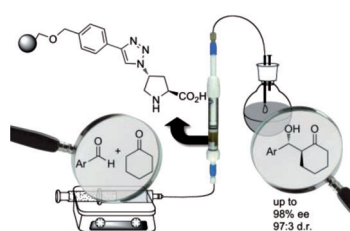
ChemPhysChem
DOI: 10.1002/cphc.201100788



mGlu₅ IC₅₀ = 91 nM, 1.7% Glu Max

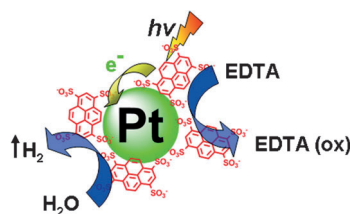
ChemMedChem

DOI: 10.1002/cmdc.201100510



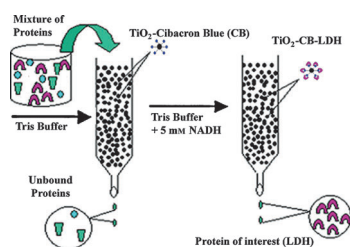
ChemSusChem

DOI: 10.1002/cssc.201100570



ChemCatChem

DOI: 10.1002/cctc.201100253



ChemPlusChem

DOI: 10.1002/cplu.201100039

Addiction and Anxiety

R. Mueller, E. S. Dawson, J. Meiler,* A. L. Rodriguez, B. A. Chauder, B. S. Bates, A. S. Felts, J. P. Lamb, U. N. Menon, S. B. Jadhav, A. S. Kane, C. K. Jones, K. J. Gregory, C. M. Niswender, P. J. Conn, C. M. Olsen, D. G. Winder, K. A. Emmitt, C. W. Lindsley*

Discovery of 2-(2-Benzoxazolyl amino)-4-Aryl-5-Cyanopyrimidine as Negative Allosteric Modulators (NAMs) of Metabotropic Glutamate Receptor 5 (mGlu₅): From an Artificial Neural Network Virtual Screen to an In Vivo Tool Compound

From ANNs to NAMs! Data from an experimental metabotropic glutamate receptor 5 (mGlu₅) high-throughput screen (HTS) were employed to train artificial neural networks (ANNs) based on 345 confirmed negative allosteric modulators (NAMs) and 155 774 inactive compounds. This effort identified two potent mGlu₅ NAMs with a unique chemotype. Optimization afforded a tool compound (shown), active in mouse models of anxiety and addiction.

Flow Chemistry

C. Ayats, A. H. Henseler, M. A. Pericàs*

A Solid-Supported Organocatalyst for Continuous-Flow Enantioselective Aldol Reactions

Go with the flow! A novel 4-(1-triazolyl)proline immobilized onto 8% DVB-PS catalyzes highly stereoselective aldol reactions under continuous flow conditions with very low catalyst loading (TON up to 61). Up to four different enantiomerically pure aldol products can be sequentially produced in gram amounts with the same catalyst sample.

Photocatalysis

M. Zhu, Z. Li, Y. Du, Z. Mou, P. Yang*

Stable and Efficient Homogeneous Photocatalytic H₂ Evolution Based on Water Soluble Pyrenetetrakisulfonic Acid Functionalized Platinum Nanocomposites

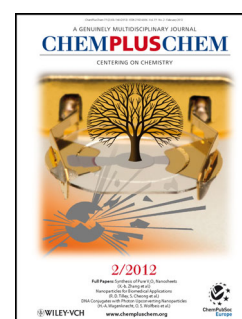
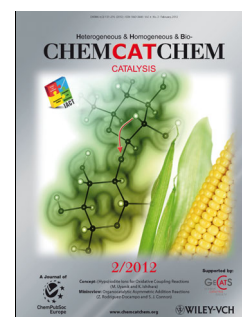
Dressed up for the photoshoot: A stable and efficient homogeneous catalytic system involving 1,3,6,8-pyrenetetrakisulfonic acid (PTSA) functionalized Pt nanocomposites as photocatalysts and ethylenediaminetetraacetic acid (EDTA) as a sacrificial reductant in the absence of an electron mediator was prepared.

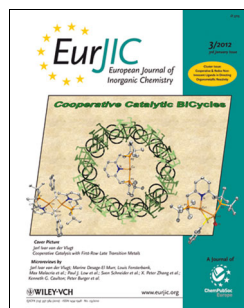
Separation Science

C. Subbalakshmi, M. Nag, S. V. Manorama*

Surface Functionalization and Characterization of TiO₂ with Cibacron Blue Dye: An Affinity Column for Proteins

Get a load of this! The purification of lactic dehydrogenase (LHD) using an affinity column of TiO₂ functionalized with Cibacron blue dye is illustrated. The large capacity of the TiO₂-CB NP microtip column for proteins, its stability at room temperature, and low cost of preparation suggest that TiO₂-CB NPs are useful for rapid protein purification. The two-step procedure results in the recovery of over 90% of the protein loaded.



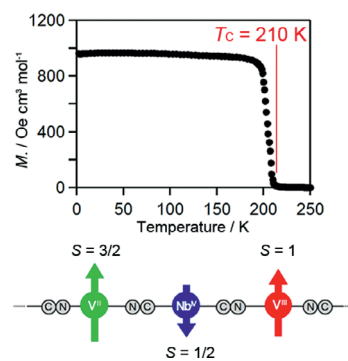


High-Curie-Temperature Bimetals

K. Imoto, M. Takemura, H. Tokoro, S. Ohkoshi*

A Cyano-Bridged Vanadium–Niobium Bimetal Assembly Exhibiting a High Curie Temperature of 210 K

We prepared a V–Nb octacyano-bridged bimetal assembly, $K_{0.59}V^{II}_{1.59}V^{III}_{0.41}[Nb^{IV}(CN)_8] \cdot (SO_4)_{0.50} \cdot 6.9H_2O$, with a high Curie temperature (T_C) of 210 K, which is the highest T_C among those of other octacyanometalate-based compounds. The high coordination number of octacyanonitrate and the strong superexchange interaction between V^{II} ($S = 3/2$) and Nb^{IV} ($S = 1/2$) through the CN groups are the reasons for such a high value.



Eur. J. Inorg. Chem.
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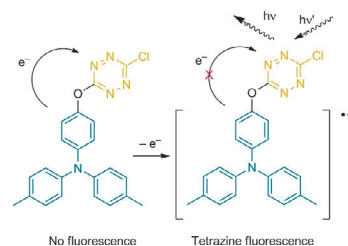


Fluorescent Switching

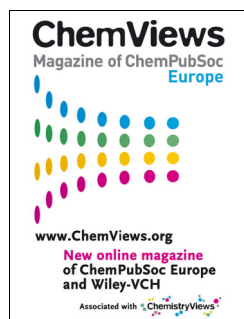
C. Quinton, V. Alain-Rizzo,* C. Dumas-Verdes,* G. Clavier, F. Miomandre, P. Audebert*

Design of New Tetrazine–Triphenylamine Bichromophores – Fluorescent Switching by Chemical Oxidation

Tetrazine–triphenylamine bichromophores linked by an oxygen atom were designed and synthesized. Their photophysical and electrochemical properties were investigated. These dyads are nonfluorescent compounds in their neutral state because of photoinduced electron transfer. However, tetrazine fluorescence was restored by chemical oxidation (cation radical formation).



Eur. J. Org. Chem.
DOI: 10.1002/ejoc.201101584



Chemical Societies

Vera Köster

L. Oro: EuCheMS Past-President

Luis A. Oro, Past-President of EuCheMS and Director of the Instituto Universitario de Catálisis Homogénea, University of Zaragoza, Spain, talks about the role of societies in our global world, his Presidency, and his research.



ChemViews magazine
DOI: 10.1002/chemv.201200008