On these pages, we feature a selection of the excellent work that has recently been published in our sister journals. If you are reading these pages on a computer, click on any of the items to read the full article. Otherwise please see the DOIs for easy online access through Wiley Online Library.

**H$_2$ Evolution**

B. Reuillard, J. Warnan, J. J. Leung, D. W. Wakerley, E. Reisner*

A Poly(cobaloxime)/Carbon Nanotube Electrode: Freestanding Buckypaper with Polymer-Enhanced H$_2$-Evolution Performance

**Giving it some gas:** Hybrid carbon-nanotube-based electrodes can be constructed in a straightforward manner by the integration of a cobaloxime-containing copolymeric structure into a multiwall carbon nanotube matrix. The use of the cobaloxime-containing copolymer led to a significant improvement in the electrocatalytic hydrogen-evolution performance compared to the use of a monomeric cobaloxime (see figure).

Angew. Chem. Int. Ed.
DOI: 10.1002/anie.201511378

**Ionogels**

X. Wang, Q. Yang, Y. Cao, J. Zhou, H. Hao, Y. Liang, J. Hao*

**Ionogels of a Sugar Surfactant in Ionic Liquids**

**Sweetened gels:** Green and environmentally friendly ionogels are obtained through the self-assembly of a sugar surfactant in imidazolium-based ionic liquids (see figure). Microstructures from ribbons to lamellar structures are induced by temperature. The relationship between the rheological and tribological properties are described.

Chem. Asian J.
DOI: 10.1002/asia.201501198

**Protein-Protein Interactions**

V. Azzarito, P. Rowell, A. Barnard, T. A. Edwards, A. Macdonald, S. L. Warriner,* A. J. Wilson*

**Probing Protein Surfaces: QSAR Analysis with Helix Mimetics**

**Rationalising behaviour:** Using a helix mimic based on an oligoamide scaffold, we have exploited a modular synthesis to access compounds that can readily be used to understand the noncovalent determinants of hDM2 recognition by cell-active p53/hDM2 inhibitors.

ChemBioChem
DOI: 10.1002/cbic.201500504
Single Molecules

K. Mathwig, Q. Chi, S. G. Lemay, L. Rassaei*

Handling and Sensing of Single Enzyme Molecules: From Fluorescence Detection towards Nanoscale Electrical Measurements

Hard to handle: Some of the major breakthroughs that have led to significant advances in classical single-molecule enzyme studies are first summarized. In addition, several recent developments in micro- and nanodevices are highlighted, which allow the study and handling of few or even single enzyme molecules in a confined reaction space.

Medicinal Chemistry

M. Petrera, T. Wein, L. Allmendinger, M. Sindelar, J. Pabel, G. Höfner, K. T. Wanner*

Development of Highly Potent GAT1 Inhibitors: Synthesis of Nipecotic Acid Derivatives by Suzuki–Miyaura Cross-Coupling Reactions

Exploring the gap: Guided by molecular modeling studies, a series of nipecotic acid derivatives with different 2-biphenyl moieties on an N-butenyl linker were synthesized as potential GAT1 inhibitors. A 2,4’-dichlorobiphenyl-2-yl derivative was found to be highly potent in binding and uptake assays and to display high subtype selectivity for GAT1.

Solar Cells

Z. He, J. Liu, S. Y. Khoo, T. T. Y. Tan*

Electropolymerization of Uniform Polyaniline Nanorod Arrays on Conducting Oxides as Counter Electrodes in Dye-Sensitized Solar Cells

PANI for your thoughts: A rapid and template-free method to grow highly ordered polyaniline (PANI) nanorod arrays on conducting oxide substrates is reported. The substrate, FTO, is modified with a thin layer of reduced graphene oxide, before growth of the PANI nanorods by in situ, low-potential electropolymerization. When employed as electrodes in dye-sensitized solar cells, the PANI arrays offer high electrocatalytic activity, chemical stability, and enhanced performance compared to platinum-based electrodes.

Electrocatalysis

B. Wang, S. Shen,* L. Guo

Surface Reconstruction of Facet-Functionalized SrTiO$_3$ Nanocrystals for Photocatalytic Hydrogen Evolution

Facet-rich coating: Surface-reconstructed SrTiO$_3$ nanocrystals with disordered overlayers are created by a thermal hydrogenation process. The nanocrystals enclosed with (023) and (001) facets in an appropriate ratio show the highest photocatalytic activity for hydrogen evolution. MOR = methanol oxidation reaction; V = vacancy.
Density Functional Calculations
H.-Y. T. Chen, S. Livraghi, E. Giamello, G. Pacchioni*

Mechanism of the Cyclo-Oligomerisation of $\text{C}_2\text{H}_2$ on Anatase TiO$_2$ (101) and (001) Surfaces and Their Reduction: An Electron Paramagnetic Resonance and Density Functional Theory Study

On the surface of things: Acetylene oligomerisation occurs on the surface of anatase TiO$_2$ leading to the formation of polycyclic aromatic hydrocarbons and a reduced titania surface. The mechanism of the reaction has been elucidated by EPR measurements and DFT calculations (see figure).

ChemPlusChem
DOI: 10.1002/cplu.201500383

Water Splitting
T. Li, X. Wang, W. Yuan,* C. M. Li

Unique Co-Catalytic Behavior of Protic Ionic Liquids as Multifunctional Electrolytes for Water Splitting

DEAFening: For the first time, a protic ionic liquid, diethylammonium formate, is used as a multifunctional electrolyte in a water-splitting cell, demonstrating a unique role as co-catalyst.

ChemElectroChem
DOI: 10.1002/celc.201500458

Hydrogen-Storage Materials
Z. Yang, W. Xiong, J. Wang, Y. Zhu, Y. Xia*

A Systematic Study on the Preparation and Hydrogen Storage of Zeolite 13X-Templated Microporous Carbons

A systematic study on CVD-based strategies for the nanocasting of porous carbon materials with zeolite 13X as template is presented. The resulting carbon materials exhibit hydrogen-uptake capacities of up to 6.3 wt.-%. Linear relationships between the uptake capacity and the total surface area, the micropore volume, and the micropore surface area were found.

DOI: 10.1002/ejic.201501180

Natural Product Synthesis
D. A. Heredia, E. L. Larghi,* T. S. Kaufman*

A Straightforward Synthesis of 5-Methylaaptamine from Eugenol, Employing a 6π-Electrocyclization Reaction of a 1-Azatriene

5-Methylaaptamine, an analogue of naturally occurring aaptamine, was synthesized from eugenol by using an A → AC → AC–B ring-construction strategy. The synthetic approach involved the preparation of a 2,3-dihydro-1H-quinolin-4-one system through an aza-Michael/sulfonamidation/Friedel–Crafts cyclization sequence. A 6π-electrocyclization reaction was used to obtain the final B ring.

DOI: 10.1002/ejoc.201501566
Green Synthesis
S. N. Maddila, S. Maddila, W. E. van Zyl, S. B. Jonnalagadda*

Ceria–Vanadia/Silica-Catalyzed Cascade for C–C and C–O Bond Activation: Green One-Pot Synthesis of 2-Amino-3-cyano-4H-pyrans

One-pot wonder: We designed a ceria–vanadia/silica (Ce–V/SiO₂) heterogeneous catalyst and used it for the green synthesis of 2-amino-3-cyano-4H-pyrans derivatives, typically used in pharmaceuticals. The efficient reaction was a multicomponent one-pot condensation of 5,5-dimethylcyclohexane-1,3-dione, aromatic aldehyde, and malononitrile in ethanol, with yields up to 95%. The catalyst is economical, recyclable, and reusable for over five runs while preserving its high activity.

Amide Synthesis
Y.-F. Guo, T.-L. Ren, B.-H. Xu,* Y.-F. Wang, S.-J. Zhang*

Cobalt-Catalyzed Dehydrogenative Coupling of Alcohols/Aldehydes and Amines: An Important Role for Imine Hydration

A good hyd-ing: A protocol for Co⁹/¹/t-BuO₂⁻/t-BuOO⁻/I₂/I₂₂/I₃ is the active hydrogen-abstraction species in this catalytic process. Investigation into the reaction mechanism also revealed the potential transiency of a hemiaminal and the important role of its regeneration by imine hydration.

Biomineralization
Y. Maeda, Z. Wei, Y. Ikezoe, E. Tam, H. Matsui*

Biomimetic Crystallization of MnFe₂O₄ Mediated by Peptide-Catalyzed Esterification at Low Temperature

A catalytic peptide, discovered through hydrogel-based phage display, could generate MnFe₂O₄ nanocrystals exhibiting superparamagnetism at 4 °C in a methanol–benzyl alcohol mixture.

Biomass Production
F. Derwenskus, C. Holdmann

Microalgae – Underestimated All-Rounders

Microalgae have substantially higher biomass productivity than terrestrial plants. These diverse species have potential for a whole range of applications, including synthesizing food ingredients and recycling inorganic waste. The optimization of algae-based processes is a very promising area of research.