

## National Medals to A. Heller and M. A. El-Sayed

In September last year, the two highest accolades in the USA in the fields of technology and science for 2007 were presented: the National Medal of Science and the National Medal of Technology & Innovation. In total, 14 individuals and two companies were awarded.

A National Medal of Technology & Innovation went to **Adam Heller** (University of Texas at Austin) for his contributions to electrochemistry and bioelectrochemistry that have improved the quality of life and health of millions. Heller studied chemistry and physics at the Hebrew University in Jerusalem and completed his doctoral degree there in 1961 under E. D. Bergmann. He then carried out research at the University of California Berkeley (1962–1963) and Bell Laboratories (1963–1964). He held further positions at GTE Laboratories (1964–1975) and again at Bell Laboratories (1975–1988). In 1988 he was appointed to the Ernest Cockrell Senior Chair in Engineering at the University of Texas at Austin, and in 2002 he became one of the first research professors there.

Among his numerous scientific achievements are the development of the first neodymium(III) liquid laser (1966) and the Li/SOCl<sub>2</sub> battery (1973), which is still in use worldwide. In 1996, together with his son, he founded the company TheraSense Inc., which introduced the blood-sugar analyzer FreeStyle and the continuous glucose measurement system FreeStyle Navigator. The latter is based on the electrical connection of enzyme redox centers with electrodes using a conducting redox hydrogel that Heller developed. He has made further important contributions to solar cell research, photoelectrochemistry, and the development of high-density high-frequency chips for the miniaturization of portable electronic devices such as mobile phones. He wrote an essay for *ChemMedChem* explaining that a reason for the onset of cancer is the inability of cells to maintain sufficiently high 'NO concentrations.<sup>[1]</sup> In *ChemSusChem*, he asked which challenges and investment possibilities the development of renewable energy sources bring to chemical engineering.<sup>[2]</sup> Heller is a member of the Advisory Board of *Fuel Cells*.

**Mostafa A. El-Sayed** (Georgia Institute of Technology) received a National Medal of Science for his contributions to the understanding of electronic and catalytic properties of nanostructures and nanomaterials. El-Sayed received his B.Sc. in 1953 from Ain Shams University (Egypt) and completed his Ph.D. at Florida State University under M. Kasha. After postdoctoral stays at Harvard University, Yale University, and the California Institute of Technology, he moved to the University of California, Los Angeles in 1961. In

1994 he was made professor at the Georgia Institute of Technology, where he holds the Julius Brown Chair and is Regents' Professor and director of the Laser Dynamics Lab.

El-Sayed and his co-workers develop new techniques, such as magnetophotoselection, picosecond Raman spectroscopy, and phosphorescence microwave double-resonance spectroscopy for the investigation of ultrafast dynamic processes and optical properties of molecules, solids, photosynthetic systems, semiconductor quantum dots, and metallic nanostructures. A further research area is the application of differently formed metal nanoparticles in nanophotonics, nanocatalysis, and nanomedicine, or as nanomotors. In *Advanced Materials*, El-Sayed recently presented a purely optical gigahertz modulation method, in which modulation of transmitted light is brought about by coherent oscillation of the photon modes of gold deposits on monolayers of polystyrene spheres.<sup>[3]</sup> El-Sayed was Editor-in-Chief of the *Journal of Physical Chemistry* from 1980 to 2004 and is a member of the Editorial Advisory Board of *ChemPhysChem*.

## AstraZeneca Research Prize to L. Gooßen

The £12500 AstraZeneca Award in Organic Chemistry is presented annually to a British and to another European chemist whose innovative work has led to advances in medicine. The prize money is intended to assist the continuation of the recipient's project in the areas of preparative, mechanistic, or bioorganic chemistry. In 2008, the prize was awarded to Lukas Gooßen of the Technical University of Kaiserslautern. He has developed sustainable transition-metal-catalyzed transformations, and in particular cross-couplings and additions, as alternatives to traditional multi-step methods, with the goal of waste minimization. Substrates such as carboxylic acids are used instead of organohalogen compounds.

Gooßen studied chemistry in Bielefeld and Michigan; he received his undergraduate (Diplom) degree in 1994 after conducting research at the University of California Berkeley under K. P. C. Vollhardt. He then moved to the TU München, where he completed his doctorate under the supervision of W. A. Herrmann in 1997. After a research stay with K. B. Sharpless and a period as laboratory head at Bayer AG, he completed his habilitation in 2004 under M. T. Reetz at the Max-Planck-Institut (MPI) für Kohlenforschung. A Heisenberg Fellowship then brought him to the RWTH Aachen before he took up a chair in organic chemistry in 2005 at the TU Kaiserslautern. Last year, Gooßen presented a Review in *Angewandte Chemie* on carboxylic

### Awarded



A. Heller



M. A. El-Sayed



L. Gooßen

acids as substrates in homogeneous catalysis,<sup>[4]</sup> and he also reported on the synthesis of secondary enamides by ruthenium-catalyzed selective addition of amides to terminal alkynes.<sup>[5]</sup>

### C. M. Niemeyer Named Max Planck Fellow

The Max Planck Society has named Christof M. Niemeyer (TU Dortmund) as a Max Planck Fellow. Niemeyer studied chemistry in Marburg and completed his doctorate at the MPI für Kohlenforschung under M. T. Reetz (Mülheim/Ruhr). He then took up a postdoctoral position at the Center for Advanced Biotechnology in Boston with C. R. Cantor. He completed his habilitation at the University of Bremen in 2000, and since 2002 he has been professor for biological and chemical microstructure technology at the TU Dortmund, where he studies the chemistry of bioconjugates and their applications in biosensors, catalysis, and molecular nanotechnology. He also founded the company Chimera Biotech, which develops diagnostic applications of DNA–protein conjugates.

His position as a Max Planck Fellow is limited to five years and is coupled with directing a research group at the MPI of Molecular Physiology in Dortmund. The research will be carried out at the interface between molecular cell biology and nanobiotechnology. He has recently produced two Reviews for *Angewandte Chemie*, which deal with the reconstitution of apoenzymes<sup>[6]</sup> and (together with H. Waldmann) with the production of protein biochips.<sup>[7]</sup>

### Hans Fischer Prize to P. Spiteller

Peter Spiteller (TU München) has received the Hans Fischer Prize 2008 for his research on the interdependence between mycoparasitic fungi and their host fungi. Spiteller studied chemistry and physics at the University of Bayreuth and completed his doctorate in 2001 at the LMU München under W. Steglich. He then took up a postdoctoral position with H. G. Floss at the University of Washington in Seattle as a Feodor Lynen fellow. Since 2004, he has been working on his habilitation at the TU München as a Emmy Noether fellow.

His area of research is the study of the chemical ecology of higher fungi, in particular the influence of mycoparasitic fungi on higher fungi. He investigated the defense mechanisms of higher fungi against predators<sup>[8]</sup> and the bioactive secondary metabolites that they produce and that clearly differ in structure from the corresponding compounds in plants. In the *European Journal of Organic Chemistry* he reported last year on benzoxepine esters as precursors of the wound-activated chemical defence of *Mycena galopus*.<sup>[9]</sup>

### O. Trapp Receives Innovation Prize

Oliver Trapp was awarded the €50 000 Innovation Prize of the State of North Rhine–Westphalia in the “young researcher” category. He is thus recognized for the outstanding achievements in catalysis that he has already made early in his scientific career. Trapp’s developments include novel multiplexing techniques for high-throughput analysis of catalytic reactions and reaction chromatographic methods, which are a combination of chemical reaction and separation in one step for the identification and quantification of reaction products and the acquisition of kinetic data.

Trapp studied chemistry at the University of Tübingen and completed his doctorate there in 2001 under the supervision of V. Schurig. He then took up a postdoctoral position at Stanford University in the group of R. N. Zare. From 2004 to 2008 he was director of an Emmy Noether research group at the MPI für Kohlenforschung (Mülheim/Ruhr), and since 2008 he has been professor for organic chemistry at the University of Heidelberg. He recently reported kinetic studies on high-turnover hydrogenation with palladium nanoparticles in *Chemistry—A European Journal*,<sup>[10]</sup> and in *Angewandte Chemie* he presented a Highlight on molecular sensors.<sup>[11]</sup>

### Eli Lilly Grantee Awards to R. Sarpong, J.-Q. Yu, and A. Zakarian

The Eli Lilly Grantee Award 2008 offered by the pharmaceutical company Eli Lilly for promising young chemists went to Richmond Sarpong (University of California, Berkeley), Jin-Quan Yu (The Scripps Research Institute, La Jolla), and Armen Zakarian (University of California, Santa Barbara). The prize is associated with a \$100 000 unrestricted two-year research fellowship.

**Richmond Sarpong** received his B.Sc. in 1995 at Macalester College (St. Paul) and then moved to Princeton University, where he completed his doctorate in 2001 under the supervision of M. F. Semmelhack. He was then a UNCF–Pfizer postdoctoral fellow at the California Institute of Technology (Pasadena) with B. M. Stoltz (2001–2004). He began his independent research career in 2004 as assistant professor at the University of California Berkeley.

His research involves the total synthesis of biologically active and structurally complex natural products as a platform for the development of new synthetic methods and strategies. Sarpong recently reported in *Angewandte Chemie* on the rapid degradation of the pentacyclic cortistone core structure,<sup>[12]</sup> and in the next issue a Communication will appear on cyathane and cyanthiwigin diter-



C. M. Niemeyer



P. Spiteller



O. Trapp



R. Sarpong



J.-Q. Yu



A. Zakarian

penes, which are accessed by a parallel kinetic resolution approach.<sup>[13]</sup>

**Jin-Quan Yu** studied chemistry in Shanghai and Guangzhou (China). In 1994 he moved to Christ's College (University of Cambridge, UK), where he completed his doctorate under the supervision of J. B. Spencer (2000). His next stay was at Harvard University, where he carried out postdoctoral research with E. J. Corey from 2001 to 2002. He then moved back to Cambridge (until 2004) and later to Brandeis University (USA) as an assistant professor before he was made associate professor at the Scripps Research Institute in La Jolla (USA) in 2007.

Yu develops catalytic carbon–carbon and carbon–heteroatom couplings based on C–H activation. The aim is to use simple and easily obtainable starting materials and transformations with which the syntheses of selected classes of biologically active compounds can be substantially simplified. Last year he described the synthesis of indolines and tetrahydroisoquinolines from aryl ethylamines by palladium(II)-catalyzed C–H activation in *Angewandte Chemie*,<sup>[14]</sup> and his Review on palladium(II)-catalyzed C–H activations and C–C cross couplings will appear in 2009.<sup>[15]</sup>

**Armen Zakarian** began his education in chemistry at Moscow State University, and from 1996 he continued it at Florida State University, where he completed his doctorate under the supervision of R. A. Holton. He was a postdoctoral fellow in the group of L. E. Overman at the University of California, Irvine in 2002. He has been assistant professor at the Department of Chemistry and Biochemistry at the University of California Santa Barbara since 2008.

Zakarian works on the synthesis of biologically and medically relevant compounds. A focus of his work is the total synthesis of natural products such as spirolides and pinnatoxins, which stimulates the development of new synthetic methods. Two recent contributions of his to *Angewandte Chemie* are on acyclic stereocontrol in the Ireland–Claisen rearrangement of  $\alpha$ -branched esters<sup>[16]</sup> and on the total synthesis of ( $\pm$ )-trichoderamide B and a putative biosynthetic precursor of aspergillazine A.<sup>[17]</sup>

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