Side Event G2: The Role of European Research and Technology Organisations in promoting the Technology Transfer of Materials Technology

Tuesday 10 September 2013
Room: Sevilla 3
Chair: Patrick Bressler, Fraunhofer Brüssel, Brussels, Belgium

Prof. Dr. Armin Reller,
Head of Fraunhofer Project Group Materials Recycling and Resource Strategy, University of Augsburg and Fraunhofer Institut für Silicatforschung, Würzburg, Germany

Armin Reller studied Chemistry at the University of Zurich, held a chair at University of Hamburg (1988-1992) and was chair of solid state chemistry at the University of Augsburg and then was chair of Resources Strategy at the same university in 2009. Prof. Reller is Spokesman of the Center of Competence for the Environment.

13:30 – 13:50
New strategies for materials management and end-of-use design of materials

Currently the technical development is characterized by the implementation of an enormous and steadily increasing number of functional materials. Be it in microelectronics, in automotive industry or in polymer and composite materials industry, the diversity of reliably interacting functional compounds and elements is stupefying. This trend is also evident by the use of many functionalized metals in elemental form, in alloys or in ceramics. Many of these materials are only applied in minute amounts, but nevertheless, they are indispensable and often not substitutable. All in all these recent trends increase the problem of efficient re-manufacturing, re-processing and re-cycling strategies and technologies. In this contribution improved logistics and design concepts for recovering essential materials - in particular strategic metals - efficiently, selectively and economically. Accordingly the use of primary and secondary resources can be optimized, while the dissipative losses are minimized. Case studies documenting the industrial practice are presented.

Speaker: Constantin Vahlas
CNRS and Interuniversity Materials Engineering Center (CIRIMAT), Toulouse
Materials Science and Engineering Expert Committee, European Science Foundation, Strasbourg

Constantin Vahlas is research director at the French National Center for Scientific Research (CNRS). He heads the Surface Reactivity and Functionalization group (25 members) at the Inter-University Materials Engineering Center (CIRIMAT) in Toulouse. Over the past twenty eight years, his research interests have revolved around gas–solid interactions and chemical vapor deposition. His actual research is focused on metalorganic CVD of architectured, (multi-)functional metallic and oxide films and particles on flat and complex surfaces and on powders for applications in space, pharmaceutics or sensors.

Constantin Vahlas received a Chemical Engineering degree from the National Technical University of Athens, and a Doctorate in Metallurgy from the National Polytechnic Institute of Grenoble. He has held visiting fellowships at the Oak Ridge National Laboratory and at the Universities of Pau and of Delaware. He was director of an Integrated Laboratory on Advanced Coating Technologies in the frame of a European Network of Excellence (2006-2010), of an integrated CNRS unit on functionalization of complex in shape surfaces by gas phase processes (2008-2011), and of the Materials Science interdisciplinary program of CNRS (2009-2012). He is actually member of the Materials Science Expert Committee of the European Science Foundation. He is member of the Editorial Advisory Board of Ceramics International and is the guest editor of two special issues of the journal Chemical Vapor Deposition focused on CVD on powders and on complex surfaces. He has coauthored more than 180 publications in international journals and conference proceedings among which nine review articles, editorials and science position papers, published five book chapters and holds five patents.

13:50 – 14:10

Title: Challenges, Obstacles and Opportunities: Materials Science and Engineering in Europe

In the frame of the Materials Science and Engineering Expert Committee mandated by the European Science Foundation, a prospective on future materials has recently been finalized. This prospective complements the recently published EC report on “Materials for Key Enabling Technologies”. It is based on representative case studies in the field of metals, ceramics, functional materials and biomaterials. In an orthogonal approach, it presents the expected impact of these case studies on the Grand Challenges Energy, Mobility & Transport, Environment & Climate, Information & Communication, and Health. This prospective will be presented and recommendations will be provided for an efficient use of nanotechnology, analytical tools, combinatorial materials science,

modeling, synthesis and processing, surface science, multifunctionality, recycling, interdisciplinarity and education.

Prof. David Jarvis, European Space Agency

Short Bio:

Professor David Jarvis is Head of the New Materials & Energy Research Unit at the European Space Agency (ESA), and is responsible for € 125 million of R&D activity and a team of 12 managers and research fellows. Professor Jarvis has 12 years' experience conceiving, assembling and managing large-scale, multi-disciplinary, international consortia of academic and industrial scientists in the fields of materials and energy research. This entails the co-development of strategic technologies, with universities and companies in many different sectors such as space, aeronautics, automotive, power generation, chemical, security and nuclear fusion. In this time, an extensive international network of top scientists from academia, industry, governmental and intergovernmental R&D centres has been developed and mobilised, mainly within EC R&D Programmes. Prof Jarvis holds a BEng and PhD from Swansea University, UK. He has published about 25 scientific papers and made numerous patent applications in materials and manufacturing. In 2012, Professor Jarvis was elected as a foreign member of the Royal Swedish Academy of Engineering Sciences.

14:10 – 14:30

Title: Metallurgy Europe - innovating the industrial-academic partnership

Abstract:

Metallurgy Europe is a new billion-Euro initiative that has been put forward by the Materials Science & Engineering Expert Committee (MatSEEC-ESF) in 2012. It is a vision for a renaissance programme in metallurgy and related manufacturing technologies, that will add huge value to the European economy over the next decade. *Metallurgy Europe* will lay the technical foundation for a new generation of alloys, compounds and composites, and will transform the way we deploy metallic products in applications. This will help us aim for the future and tackle some of the societal challenges related to renewable energy, nuclear fusion, green mobility, climate change reduction, space, security and healthcare. This presentation will provide a short overview of *Metallurgy Europe* and the latest developments within the context of Horizon2020, national funding and European industry.

14:30 – 15:00

Panel Discussion