



23 June 2017, Valletta, Malta

NAMEC Workshop:
Nanotechnology & advanced materials for the Energy Union – Going
circular

Abstract

Advanced materials are key to tackle climate change, Energy Union and re-industrialization in Europe. On the other hand, a large-scale transition towards circular economy is urgently needed in order to avoid the depletion of raw material resources and reduce the impact of human activity on the environment. This workshop aims at providing some insights from both industry stakeholders and research organizations on how Europe is addressing the challenge of circular economy from the perspective of clean energy materials.

The workshop is organized by NAMEC (Nanotechnology and Advanced Materials for Energy Cluster), the overarching cluster aiming at regrouping all European projects focused on nanotechnologies and advanced materials for low carbon energy, energy storage and energy efficiency technologies (more information can be found at www.namec-cluster.org). NAMEC was set up in 2016 by the EC as a unique initiative to identify common R&I priorities for bridging the gap between advanced materials and nanotechnology-based innovation and the successful commercialisation of innovative products and industrial technologies for energy. It looks at common challenges across the different existing clusters and projects, including cross-cutting topics (materials engineering and upscaling, characterisation, modelling, standardisation, safety and pilot lines) and highlights transferable lessons between clusters and projects. NAMEC builds on the experience of the EU PV Cluster (www.eupvcluster.eu), which runs with success since 2010 to highlight the key enabling role of nanotechnology for photovoltaics and to help, in a bottom-up approach, the nanotechnology and PV communities in Europe to consolidate joint collaborations for strategic industrial partnerships.

Contacts

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Programme

9:00 – 11:00: Circular economy from the perspective of clean energy materials

09:00 – 09:05: Simon Perraud, CEA, France

Welcome and introduction to NAMEC

09:05 – 9:25: Daniele Pullini, Centro Ricerche Fiat, Italy

Research and Innovation at FCA – focus on material use and future trend for reuse

09:25 – 09:45: Fabrice Stassin, Umicore, Belgium

Li-ion battery recycling at Umicore

09:45 – 10:00: Michel Glotin, Arkema, France

New thermoplastic composite materials for the manufacture of recyclable wind turbine rotor blades

10:00 – 10:20: Edel Sheridan, SINTEF, Norway

ECOSOLAR & REE4EU European projects

10:20 – 10:40: Edgardo Saucedo, IREC, Spain

STARCELL European project

10:40 – 11:00: Victor Trapp, Fraunhofer ISC, Germany

ECO COM'BAT European project

11:00 – 11:20: Round table organized by ESEIA: Skills for new energy materials

Moderator: Brian Norton, Dublin Institute of Technology, Ireland

Round table participants:

Simon Perraud, CEA, France

Daniele Pullini, Centro Ricerche Fiat, Italy

Fabrice Stassin, Umicore, Belgium

Michel Glotin, Arkema, France

Edel Sheridan, SINTEF, Norway

Edgardo Saucedo, IREC, Spain

Victor Trapp, Fraunhofer ISC, Germany

Topics addressed during the round table:

The development and adoption of sustainable energy technologies has become a top priority in Europe, and is Horizon 2020's most prominent theme. Research into new energy methods and materials required to reduce humanity's carbon footprint is an urgent and critical need, and is reliant upon a flow of newly qualified persons in areas as diverse as renewable energy infrastructure management, new energy materials and methods, and smart buildings and transport.

In this context, nanomaterials are emerging as a vital area due to their valuable specific properties and versatility. However, European development in this prioritised field is stalled due to a lack of qualified

personnel, a lack of cohesion and integration among stakeholders, and poor linkage between professional training and industry needs.

To address these problems, it is necessary to create a network of tertiary education institutions, research centres, professional associations, and industry stakeholders encompassing the whole value chain of new energy materials. The challenges should be tackled across this network by identifying and collecting existing knowledge across the EU, by identifying the knowledge and capability gaps and creating networks of experts to address these gaps, by capacity-building, and by creating a long-lasting connection between the network of scientists and industrial stakeholders.

The discussion of the round table will focus on methods of strengthening the connection between industry and academia, with the aim of tackling the lack of qualified personnel in the field of smart energy materials. Best practices and similar approaches will be presented, such as the Horizon2020 funded project BioEnergyTrain, which brought together stakeholders from various fields in order to develop two new master's curricula in key bioenergy disciplines.

The discussion should be guided by the following questions:

1. Industrial stakeholders will identify first the lack of a specific skill, while academic organizations can provide the right training and education. Which is the best way to connect industry and academia, and how to ensure a clear communication about the identified gap?
2. How can industrial stakeholders be stimulated to actively participate in capacity building? Which are the factors that would encourage their long-term and constant involvement?
3. New knowledge is acquired at an increasingly high rate, especially during research performed by industrial players. How can we transfer this knowledge as fast as possible to the academia, to be further implemented in academic curricula?

Speakers and round table participants bios



Simon Perraud, Vice president for European affairs, CEA Liten, France.

Simon Perraud holds a M.Sc. from ESPCI Paris (2004), a Ph.D. in Physics from the Université Pierre et Marie Curie (2007), and a Habilitation degree from the Université Grenoble Alpes (2013). From 2004 to 2007, he was a doctoral researcher at the Nippon Telegraph and Telephone Corporation in Japan, studying electronic properties of semiconductor hetero-structures. He was a recipient of the Award of the Japan Society of Applied Physics in 2008. Simon joined CEA Liten in 2008, to develop new materials for photovoltaics. He had a key role in several public-private, collaborative research projects. Since 2016, he is the vice president for European affairs at CEA Liten, in charge of European programs in the field of new energy technologies and advanced materials. He is also vice chairman at EMIRI (Energy Materials Industrial Research Initiative), an industry-driven association which represents more than 60 organizations active in Europe in the field of advanced materials for low-carbon energy technologies. Simon is author or co-author of more than 40 articles in peer-reviewed international journals, and has filed more than 30 patents.



Daniele Pullini, Strategic research manager, Centro Ricerche Fiat, Italy.

Physicist, PhD and Professor – Senior researcher in academic and industrial contexts. Today, Daniele manages the Strategic Research of GML, the Global Materials Laboratories of Centro Ricerche FIAT - the research and innovation hub of FCA in the EMEA region. Daniele, besides being part of the steering committees of major ETP on advanced materials and technologies, is consistently involved in the creation of the future mobility lighthouse of the KIC raw materials and the automotive pillar of A4M from the drivers of EUCAR. Daniele has a long-lived experience in collaborative research having promoted and actively worked in a significant number of European and national research projects of fundamental and applied science and technology, nanotechnologies, advance materials and processing, Marie Curie training initiatives, and RFCS projects of different scope and partnership size. Records: +50 peer reviewed publications on material science and nanotechnology international journals, +40 conference papers, and +30 patents valid in Europe, USA, Russia, China and Japan (see: www.researchgate.net for details). Today, Daniele is a contract Professor at Politecnico di Torino, where he teaches R&I Technology Transfer - excellence course organized horizontally for the Doctorate School as a whole (disciplinary doctorate).



Fabrice Stassin, Manager EU government affairs, Umicore, Belgium.

Fabrice Stassin is Managing Director of the Energy Materials Industrial Research Initiative (EMIRI) Association. He holds a Ph.D. in Chemistry & Materials Science as well as a Master in Management & Entrepreneurship from the University of Liège in Belgium. He worked a few years as Managing Director of a Belgium-based RTO (research & technology organization) active in white biotech and later as Strategy Consultant at Accenture advising clients from chemical, oil, pharma industries in the Netherlands, Belgium and USA in the fields of innovation, sustainability, and value creation through mergers and acquisitions. In 2008, he joined Umicore (an industrial leader in advanced materials and recycling) as innovation manager covering clean technologies. Since 2012, he has been part of the Brussels-based team of Umicore Government Affairs focusing on energy materials. Fabrice Stassin was instrumental in the development of the EMIRI Association, which he has managed since 2014 (on secondment from Umicore). EMIRI represents more than 60 organizations (industry, research, and associations) active in advanced materials for low-carbon energy. The association contributes to industrial leadership of developers, producers and users of advanced materials for low-carbon energy technologies materials by shaping an appropriate innovation, manufacturing / industrial and energy policy framework at the European level.



Michel Glotin, Scientific director for materials, Arkema, France

Dr. Michel Glotin was born on the 20-10-1952 in Nantes, France. He holds a Master's degree in Science and Technology, University Bordeaux 1, France (1975), and a Ph.D. in Physical Chemistry, University of Southampton, G.B. (1978). He was a Post-doctoral Fellow, Florida State University, USA, 1979 to 1981. He joined Arkema (previously ATO-Chimie, Elf-Atochem, Atofina) in 1982 and held successive positions as Researcher on performance Polymers, then was Head of the Materials Research Laboratory in Arkema's Specialty Polymers Research Center, Normandy, France. He became Senior Scientific and Technology Advisor, Polymer Materials, in 20001 and since 2006 he is Director Materials Science, in Arkema's R&D direction. Dr. Glotin holds more than 20 patents and has 50 polymer science related publications and invited lectures. He is the former President and current member of the board of the Groupe Français des Polymères (GFP- French Polymer Society). Main themes of interest: Polymer Crystallization, Polymer Blends, Nanostructured Polymer Materials, High performance Polymers, Thermoplastic composites.

Edel Sheridan, Research scientist, SINTEF, Norway.

Dr. Edel Sheridan is a research scientist at SINTEF, one of the largest research organisations in Scandinavia. She moved from her homeland of Ireland to Trondheim, Norway in 2006, to pursue a career in research, first at The Norwegian University of Science and Technology (NTNU) and subsequently at SINTEF where she continues to work today. She is part of the New Energy Solutions research team at SINTEF Materials and Chemistry, who perform research in the fields of fuel cells, electrolyzers, supercapacitors and batteries. Her own research experience is varied from the development of conducting polymer sensors during her PhD at Maynooth University, Ireland, to gas separation membrane technology at NTNU and in more recent years, materials development for supercapacitors, Li ion, Mg ion and Zinc-air batteries at SINTEF.



Edel has the privilege and responsibility to coordinate the subprogram for Electrochemical Energy Storage in the European Energy Research Alliance for Energy Storage (EERA ES), which involves organising common networking activities for 26 research organisations and universities across Europe working in the field of batteries and supercapacitor technology. Through her work, she has the opportunity to become familiar with industries engaged in battery materials production, in addition to gaining an overview of the state of battery research in Europe. Edel is friendly, outgoing and energetic which she attributes to her Irish heritage. Edel enjoys building and being part of research projects that contribute to sustainable energy solutions for future generations.

Edgardo Saucedo, Senior scientist, IREC, Spain.

Dr. Edgardo Saucedo studied Chemical Engineering at the University of the Republic, Montevideo, Uruguay, and received his PhD in Materials Physics at the Universidad Autónoma de Madrid, Madrid, Spain in 2007. In 2007, he joined the Institut de Recherche et Développement sur l'Énergie Photovoltaïque IRDEP (Paris, France), with a CNRS associated Researcher fellowship, working in the development and optoelectronic characterization of CIGS low cost based solar cells. In 2009, he joined NEXCIS, a spin-off created from IRDEP, to further pursue their training in photovoltaic technology. Currently, he is the responsible of the Solar Energy Materials and Systems Laboratory at the Catalonia Institute for Energy Research (IREC) under a Ramon y Cajal Fellow, with the aim to develop new low cost materials and processes for thin film photovoltaic devices. He holds three patents and has authored or co-authored more than 150 papers in recognized international journals, including: Adv. Energy Materials, Journal of the American Chemical Society, Chemistry of Materials, Progress in Photovoltaics: Research and Applications, Solar Energy Materials and Solar Cells, NanoEnergy, J. Mater. Chem. A, J. Phys. Chem. C, etc. He has more than 150 contributions to the most important Congresses in Physics, Chemistry and Materials, and more than 25 invited talks around the world. He has been involved in more than 15 European and Spanish Projects (Scalenano, Inducis, Pvicokest, KestPV, Larcis, etc.), and he was the coordinator of the ITN Marie Curie network Kestcell (www.kestcells.eu) and the research and innovation project STARCELL (www.starcell.eu), two of the most important initiatives in Europe for the development of Kesterites. He is frequently chairman and invited speakers in the most relevant Conferences in Photovoltaic (E-MRS, MRS, IEEE-PVSC, EUPVSEC, European Kesterite Workshop, etc.). He has supervised eight (8) PhD Thesis and is currently supervising five (5) more. He has an h factor of 29 and more than 3000 citations.





Victor Trapp, Head of marketing & sales, Fraunhofer ISC, Germany.

Dr. Trapp studies Chemistry at Technical University Berlin, and Newcastle University, UK, until 1996. Since 1996 he held several positions at SGL Carbon, Germany: Head of Fuel Cell Component Department, Head of IP department, Assistant to CTO, New Business Development, Head of Ceramic Fiber Project. He was responsible for up-scaling of several pilot production lines and international business development projects. He obtained various training levels in International Business Development, Intellectual Property, Six Sigma Green Belt. In 2011, Dr. Trapp joined Fraunhofer Institute for Silicate Research ISC, Würzburg, Germany. Until 2013, he established and managed a new department for battery research (30 employees). He is currently Head of Marketing and Sales at Fraunhofer ISC, in charge of international business development, e.g., of advanced coatings, battery materials, nanoparticles and composites.



Brian Norton, President, Dublin Institute of Technology, Ireland.

Professor Brian Norton has been President of Dublin Institute of Technology since September 2003 and Vice-President of the European Sustainable Energy Innovation Alliance - eseia since 2009. Currently, Professor Norton is elected to the Council of Dublin Chamber of Commerce. He is a Director of The Greenway, Ireland's first green technology corridor and is Vice-President of the European Sustainable Energy innovation Alliance. He has Doctorates from University of Nottingham and Cranfield University. He is a Fellow of the Energy Institute, Engineers Ireland, Higher Education Academy. He has been awarded the Napier Shaw Medal of the Chartered Institute of Building Services Engineers and the Roscoe Award of the Institute of Energy. He is an Honorary Fellow of the Chartered Institute of Building Services Engineers and he was a Fellow of the Irish Academy of Engineering. He is an Honorary Professor of the both University of Ulster and the Harbin Institute of Technology, China and University of Houston, USA.

Professor Norton is the author or co-author of nine books, over 420 papers principally in solar energy research including 170 in major international learned journals.
