

CERIC-ERIC newsletter n.1

CERIC-ERIC is an integrated multidisciplinary Research Infrastructure open for basic and applied users in the fields of Materials, Biomaterials and Nanotechnology. With a single entry point to excellent facilities, it allows structural investigation, analysis and synthesis of materials, using photon, electron, neutron, and ion based techniques.

www.ceric-eric.eu

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Results

CERIC-ERIC Call 2 for proposals registers exponential increase in submitted proposals

CERIC-ERIC closed its Call 2 for proposals on the 30th of March. The offer of multiple complementary techniques confirmed the appeal and the usefulness of this approach for the research community. 55 proposals have been submitted by researchers coming from all over the world, with an increase of 25% on the previous call. The single entry point to the complementary analytical facilities offered by CERIC-ERIC is an extremely valuable approach for multidisciplinary research and for developing the scientific R&I system at the transnational level.

XRD1 beamline in CERIC has been accredited with the ISO 9001:2008 certification

January 15th – Elettra Sincrotrone Trieste, Trieste – Italy

The international consulting firm Det Norske Veritas - Germanischer Lloyd (DNV-GL) has held a visit in Elettra Sincrotrone Trieste, CERIC-ERIC Statutory Seat, to certify the facility according to the quality management international standard ISO 9001:2008.

DNV-GL (one of the most distinguished certification bodies worldwide) has assessed all the organisational and management components, as well as – from an operational point of view – the activities undertaken by the Industrial Liaison Office and by the XRD1 beamline (an experimental station using X ray-diffraction for the analysis of materials).

The latter in particular has reported an extremely positive and groundbreaking result, for it being the first European and Western beamline accredited with such a certificate, second in the world only to the Australian Synchrotron.

XRD1 is among the most requested beamlines in CERIC-ERIC. Designed in collaboration with the Institute for Crystallography of the CNR, it has been thought primarily for macromolecular crystallography, but the characteristics of the beamline permit to perform a wide variety of experiments. The beamline is included in the BioStruct-X funding programme for transnational beam-time access within EU, while a parallel funding programme is available also for national users.

Opportunities

CERIC-ERIC New Users Symposium 2015

Photons, Ions, Neutrons and Electrons combined in Materials and Biomaterials.
Premier workshop on multi-technique research.

June 24th – 25th 2015, Krakow – Poland

On the 24th and 25th of June, CERIC-ERIC, in collaboration with the new Polish synchrotron SOLARIS (a facility soon-to-be available to CERIC users), will organize the CERIC New Users' Symposium 2015, focused on CERIC multi-technique research approach.

The symposium aims at helping new users to get acquainted with the structure and the opportunities of a distributed Research Infrastructure, and with the demands of a successful CERIC multi-technique proposal, to increase the quality of the received proposals and of the research projects. The event will host up to 150 participants, who will be introduced to the complementary methods of the CERIC Partner Facilities by beamline and instrument scientists and experienced CERIC users. The participants will also be able to present their own single- and multi-technique research in poster sessions and are invited to participate in Q&A sessions to open the discussion and to optimize the outcome of the Symposium.

Registration is free of charge and now open. More information is available at www.ceric-eric.eu in the Events' section.

CETS 2015 – Central European School on Neutron Techniques

An opportunity to learn about neutron scattering techniques and their application

May 4th – 8th 2015, Budapest – Hungary

The 9th Central European Training School on Neutron Techniques will be held from the 4th to the 8th of May 2015 at the Budapest Neutron Centre in Hungary.

The school will be a forum for the presentation and discussion of current young scientists' research works. The five days of training will provide insight into neutron scattering techniques and into their application for studies on the structure and on the dynamics of condensed matter. Comprehensive experimental skills and guidance in results' interpretation are going to be conveyed.

CETS will welcome PhD and master students, post-doc scientists, as well as newcomers to the neutron research from the field of structural research in physics, chemistry, biology, material science etc.

The instruments available include: Small Angle Neutron Scattering (YS), Reflectometer (GINA), Triple Axis Spectrometer (TAS), Neutron Diffractometer (ND), Prompt Gamma Activation Analysis and Neutron Induced Prompt Gamma-ray, Spectroscopy Station (PGAA/NIPS-NORMA).

For more details visit: www.kfki.hu/cets or write to cets@mail.kfki.hu.

Events

CERIC-ERIC @ NESY Winterschool on Neutron and Synchrotron Radiation An introduction about CERIC to early stage researchers

March 9th – 13th 2015, Altaussee – Austria

On the 9th of March, CERIC was invited to hold the opening presentation of the NESY Winterschool on Neutron and Synchrotron radiation that took place in Altaussee, Austria.

The scientific fellows of the Consortium, Matthias Girod and Daniel Mazur, presented CERIC and the possibility offered to scientific users to freely access the several available techniques in a single proposal, to about 50 early stage researchers participating in the school. Many of the students who assisted to the talk and to the poster session showed big interest in the opportunities given by the CERIC multi-technique approach and considered to apply to the future calls for proposals.

The NESY Winterschool is a very well respected school for young researchers taking place every two years in the beautiful Austrian skiing area of the Salzkammergut.

For more information about the school visit: <http://nesy2015.unileoben.ac.at/de/4257/>

CERIC-ERIC @ the roundtable #TERRITORIDIGITALI A place for discussion about the development of the industrial sector through digital technologies

March 2nd 2015, Trieste – Italy

How small and medium enterprises can increase their competitiveness through digital technologies and the web? On the 2nd of March, in Trieste – Italy, Confindustria Digitale* and Digital Champion** have organized a set of roundtables to discuss about concrete opportunities to answer this question. The aim of the roadshow #Territoridigitali, starting from Trieste to then move to other major Italian cities, is that of involving entrepreneurs and representatives of the local administrations to find solutions for the digitalization and the growth of SMEs.

A representative from the CERIC Industrial Liaison Office, Alessio Gerardo Maugeri, actively participated in the working table focused on Industry, to let the participants get acquainted with the opportunities offered by the technologies and instruments available in the Consortium and to bring awareness of the possibility to work in a distributed and integrated context, also through the support of digital tools.

Moving through the concepts of mobility, cloud computing, big data & analytics, digital marketing, social enterprise, security, outsourcing and Internet of Things, CERIC and the other participants have made their proposals to transform their enterprises/institutions in digital ones.

Firms such as Cisco, Google, HP, IBM and Microsoft were present to give hints and tips on the ways to digitalization and stimulated the discussion among the participants, to innovate and build a fruitful network in the territory.

* The Italian Federation of industries having the goal of promoting the development of the digital economy.

** Ambassadors for the Digital Agenda for Europe, appointed by the Member States to help every European become digital.

Highlights

At the origin of cloud formation

Investigating aerosol nanoparticle dynamics with a multi-technique approach

Going into the research of the CERIC users Paul M. Winkler and Paulus Bauer

Aerosol particles and clouds have a large net cooling effect on our planet and, according to the Intergovernmental Panel on Climate Change (IPCC), they represent the largest source of uncertainty in present climate models. Dr. Paul Winkler and PhD student Paulus Bauer, from the Faculty of Physics of the University of Vienna, have accessed CERIC facilities to shed new light on the very first steps of cloud formation, helping to improve the understanding of the aerosol-cloud-climate connection.

Cloud droplets form on aerosol particles - tiny solid or liquid particles suspended in the atmosphere – above a size of about 50 nm. Aerosol particles are either directly emitted into the atmosphere (like sea spray particles) or else form by the spontaneous clustering (“nucleation”) of trace atmospheric molecules. Around one half of cloud seeds are thought to originate from nucleated particles. Nevertheless, the mechanisms of the gas-to-particle conversion are still poorly understood, and so are the parameterizations of this process in climate models. Sulphuric acid is thought to play a key role but previous studies have shown that also organic vapours contribute to the nanoparticle formation.

Winkler and Bauer have been facing this issue through the quantitative characterization of nanoparticle dynamics, with a focus on high time resolution. The researchers accessed CERIC multiple complementary techniques to get direct information on particle size and number at sub-millisecond time-resolution and to study fundamental growth kinetics.

Their project – nanoDynamite – funded by the European Research Council, is innovative for it proposes to design instruments that allow first in-situ characterization of newly formed aerosol nanoparticles. The research on phase transition processes constitutes a vital link between molecular scale interactions and macroscopically relevant outcome.

Thanks to CERIC multi-technique open access service, the researchers could develop their study through a new experimental approach, with the final goal to identify and quantify nanoparticle formation mechanisms. This will allow predicting and utilizing macroscopic effects such as global-scale climatic impact caused by aerosol dynamics at the nanoscale.

You can read more news and keep updated about CERIC opportunities and events on our website: www.ceric-eric.eu