Name of the Partnering Organization:	**Installation Europeenne de Rayonnement Synchrotron- European Synchrotron Radiation Facility - ESRF**	
Location (town, country):	Grenoble - France	
Web site address:	http://www.esrf.eu	

Brief description of the organization

The European Synchrotron Radiation Facility (ESRF) is a collaboration of 18 European countries and Israel. The ESRF operates Europe's most powerful third-generation synchrotron light source, based on a 6 GeV electron storage ring delivering highly brilliant x-rays up to very high energies (several hundred keV). The user community can access more than 50 world-class experimental stations, for research in a large variety of scientific areas, resulting in more than 6500 user visits per year for close to 1000 different experiments. Constant upgrading and refurbishment guarantees a worldwide competitive performance level: A major upgrade program, which will extend the facility's capacities in Nanoscience and Nanotechnology, Structural and Functional Biology and Soft Matter, Pump-and-Probe Experiments and Time-Resolved Science, Science at Extreme Conditions as well as x-ray imaging, is currently underway. The rich international research environment provides students with a solid platform to launch their scientific careers. The ESRF funds more than 30 PhD students and 60 post doctoral fellows every year, while many hundreds more come from Member States to work on synchrotron radiation experiments. Over the past 20 years, ESRF has built up a worldwide reputation in various areas of instrumentation, including x-ray optics detector technology, automation and data processing. Since 2004, Poland is an associated country, contributing 1% to the ESRF budget (initially 0.6%). An extension of the scientific association of Poland is under discussion.

Description of the research group

Among the wide range of experimental techniques available at the ESRF, the following techniques are most relevant for the characterisation of innovative materials and of particular interest for the EAgLE proposal: **(i) XANES and RIXS spectroscopy** - very advanced spectroscopic techniques particularly well suited to study orbital splitting, spin- and oxidation states as well as the local symmetry and coordination around chosen atoms. They provide access to element-specific excitations in the range of a a few eV that can arise from local (e.g. *d-d*), nearest neighbor (e.g. charge transfer) and collective (e.g. plasmon) excitations; **(ii) XMCD** –primarily used to investigate the magnetic and electronic properties of nanoclusters, ultrathin films, superconductors and semimetals. The research covers a wide range of magnetic phenomena, such as spin- and orbit-resolved magnetic moments, magnetic anisotropies, element specific magnetization, domain walls etc.; **(iii) XAFS** – the technique enables to study the electronic structure and local atomic order around a chosen atom with space- and time-resolution in disordered systems in the fields of biophysics, chemistry and materials science; (**iv**) **XRD** – particularly well-suited for structural studies of heterostructures. The **Theory Group** conducts research in mostly solid state theory, with a particular emphasis on magnetism. This group supports the interpretation of experimental data.

Selected list of relevant publications

Effect of pressure on magnetoelastic coupling in 3d metal alloys studied with x-ray absorption spectroscopy, S. Pascarelli, M.P. Ruffoni, A. Trapananti, O. Mathon, G. Aquilanti, S. Ostanin, J.B. Staunton, R.F. Pettifer, *Phys. Rev. Lett.* 99 (2007) 237204. **Spin state transition in LaCoO(3) studied using soft x-ray absorption spectroscopy and magnetic circular dichroism,** M.W. Haverkort, Z. Hu, J.C. Cezar, T. Burnus, H. Hartmann, M. Reuther, C. Zobel, T. Lorenz, A. Tanaka, **N.B. Brookes**, H.H. Hsieh, H.-J. Lin, C.T. Chen, L.H. Tjeng, *Phys. Rev. Lett.* 97 (2006) 176405. **Strong K-edge Magnetic Circular Dichroism Observed in Photon-in–Photon-out Spectroscopy**, M. Sikora, A. Juhin, T.-C. Weng, P. Sainctavit, C. Detlefs, F. de Groot, **P. Glatzel**, *Phys. Rev. Lett.* 105 (2010) 037202.

Key researcher's CV

Sakura Pascarelli received a Laurea in Physics at the University La Sapienza (Rome, Italy) and a PhD degree in Physics at the University Joseph Fourier (Grenoble, France). She has been involved with synchrotron radiation instrumentation and research for over 20 years. Her research today deals with studies on the correlation between magnetism and structure in compressed matter, using X-ray Absorption Spectroscopy and X-ray Magnetic Linear and Circular Dichroism She is presently Deputy Head of the Electronic Structure and Magnetism Group within the Experiment Division of the ESRF. S. Pascarelli is author of over 120 peer reviewed publications.