EXTATIC
Extreme-ultraviolet and X-ray Training in Advanced Technologies for Interdisciplinary Cooperation

Duration: 48 months

Course description:

The domain of EUV and X-ray science and technology is leading to major advances in applications in a wide range of disciplines such as: the life and medical sciences; environmental science; archaeology and other cultural heritage disciplines; analytical and materials science amongst many others. It is fair to say that critical, impending and future applications will see short wavelength sources, optics and photonics move from the laboratory bench to the industrial tool within the coming decade to augment, or in some cases, supplant, the wide gamut of applications and deployments currently enabled by conventional visible and UV radiation. A case in point is extreme ultraviolet lithography (EUVL) needed to ensure the continuation of Moore's Law of Miniaturisation beyond 2012, another is x-ray microscopy in the "water window" — $\lambda \approx 2.3 – 4.4$nm, allowing high resolution imaging of biological specimens in near-natural environments. The overarching objective of this EMJD proposal is to provide high-level training in Extreme-Ultraviolet (XUV) and X-ray science to a new generation of the high achieving graduate students to provide them with the scientific, technical and transferable skills necessary for thriving careers in a burgeoning area that underpins innovative technological development across a range of diverse disciplines. This goal will be achieved by a unique combination of 'hands-on' research training, industrial placements and courses and workshops on scientific and complementary so-called 'soft' skills facilitated by the academic-industrial composition of our network. The partners have wide experience in diverse PhD student supervision and training models and have worked closely together in many and varied scientific and graduate education collaborations, most recently in the frame of a COST action, MP0601 - Short Wavelength Laboratory Sources, led by the KCL partner. They have well resourced laboratories and are at the forefront of XUV and X-ray Science and Technology. The Associated Partners in the USA (Purdue and Colorado State) and China (Tongji-Shanghai) will provide co-supervision and placement opportunities as will European industrial partners {Silson (UK), Prevac (Poland), XENOCS (France), EPPRA (France), Rigaku Innovative Technologies (Prague) and Bruker (Germany).

Website: www.extatic.eu

Partners:
DUBLIN CITY UNIVERSITY, Ireland (Co-ordinating institution)
CZECH TECHNICAL UNIVERSITY IN PRAGUE, Czech Republic
RWTH AACHEN UNIVERSITY, Germany
UNIVERSITY COLLEGE DUBLIN, Ireland
UNIVERSITY OF PADUA, Italy
MILITARY UNIVERSITY OF TECHNOLOGY, Poland
KING'S COLLEGE LONDON, United Kingdom
UNIVERSITY OF SOUTHAMPTON, United Kingdom

Contact:
Professor John Costello
School of Physical Sciences/NCPST
Collins Avenue, Glasnevin, null
IE - 9 Dublin
Email: john.costello@dcu.ie

Maximum grant:
1 205 600 € (50 000 € consortium + 1 155 600 € fellowships), 2012
1 075 700 € (50 000 € consortium + 1 025 700 € fellowships), 2013