



**of the European Community for research, technological
development and demonstration activities (2007-2013)**

Marie Curie Action: Initial Training Networks

LA3-NET

Project title: LASers for Applications at Accelerators: A Marie Curie Initial Training NETwork

Project number: 289191

Project coordinator: The University of Liverpool, United Kingdom

Project homepage: <http://www.liv.ac.uk/la3net>

HZDR participant: Institute of Radiation Physics

Starting date: 01.10.2011

Duration (months): 48

Summary

The advancement of science and engineering in the past decades is inherently linked to the development of lasers. Ever higher laser beam powers, brightness and shorter pulse lengths have helped establish them as an invaluable tool for both a wide range of industry and medical applications, such as for example material treatment, precision measurements, laser cutting, display technologies, and laser surgery, and for fundamental research, where many of the most advanced experiments in astrophysics, atomic, molecular and optical physics, as well as in plasma research would be impossible without the latest laser technology.

Moreover, lasers have become increasingly important for the successful operation and continuous optimization of particle accelerators: Laser-based particle sources are well suited for delivering the highest quality ion and electron beams, laser acceleration has demonstrated unprecedented accelerating gradients and might be an alternative for conventional particle accelerators in the future, and without laser-based beam diagnostics it would not be possible to unravel the characteristics of many complex particle beams.

The LA3-NET consortium proposes to develop laser applications for particle accelerators within an initial training network. The network brings together research centers, universities, and industry partners to jointly train the next generation of researchers. The partners aim at developing long term collaboration and links between the involved teams across sectors and disciplinary boundaries and to thus help defining improved research and training standards in this multi-faceted field.