

Advanced Radiation Dosimetry European Network Training initiative

Reporting

Project Information

ARDENT

Grant agreement ID: 289198

[Project website](#) 

Status

Closed project

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1 February 2012


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€ 3 922 553,07

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Final Report Summary - ARDENT (Advanced Radiation Dosimetry European Network Training initiative)

ARDENT is a Marie Curie Initial Training Network funded under FP7 that started in February 2012 and ended in January 2016. The project recruited 15 Early Stage Researchers (ESR) on employment contracts up to 36 months as well three ESRs on short-term (6 months) contracts. ARDENT focused on the development and testing of instrumentation based on advanced technologies for measuring energy distributions and dosimetric quantities in complex radiation fields as well as in the medical field, e.g. the use of monoenergetic particle beams in cancer therapy. Three main technologies were investigated: gas detectors, solid state detectors and nuclear track detectors. ARDENT addressed the potential uses of a class of instruments based on these technologies with three main objectives: 1) disentangle the various components of the radiation field and determine the dosimetric quantities due to each component, 2) measure the radiation quality of the radiation field (microdosimetry) and 3) obtain information on the

energy distribution of the various components of the radiation field (in particular for photon and neutron spectrometry).

About half of the individual research projects were partly or fully devoted to development of detector technologies for medical applications. Experimental work was carried out at CNAO in Pavia, Italy; at HIT in Heidelberg, Germany; at HIMAC in Chiba, Japan; at the INFN Laboratories of Legnaro and Catania, Italy; at the Czech Proton Therapy Center in Prague; at the Klinikum rechts der Isar in Munich, Germany; and at the West German Proton Therapy Centre in Essen, Germany.

ARDENT held four annual workshops in Vienna, Milan, Schwarzenbruck and Prague, during which dedicated training courses were organized for the ESRs on dosimetry, microdosimetry and detector technologies. Additional events throughout the 4-year duration of the project gave the ESRs more opportunities to gather together, such as at a dedicated training course on business and administration held at CERN. A team building exercise took place on the evening of 21 May 2014 alongside the Allondon river close to CERN and was much appreciated.

ARDENT put a lot of emphasis on communication towards the general public. A robust outreach program was conducted through across the entire network. A major outreach event with the participation of about 200 high-school students was organised during the 2nd annual workshop at the Politecnico of Milan in September 2013. Amongst the many others are participation in CERN's 60th anniversary and in the European researcher's career and mobility conference, Dublin.

The project is complete. About two third of the ESRs have found a job and are looking forward to the next step in their career. ESR1 Eleni Aza is at the Max-Planck Institute for Plasma Physics (IPP) in Garching, Germany; ESR2 Erik Frojd is at the Paul Scherrer Institut (PSI) in Villingen (Switzerland); ESR4 Stuart George is at the University of Houston (USA); ESR5 Jayasimha Bagalkote secured a short-term contract with his ARDENT institute Siebersdorf Laboratories (Austria); ESR6 Andrej Sipaj is at the private company Kinectrics (Canada); ESR9 Benedikt Bergmann has a 5-year contract with the Czech Technical University of Prague; ESR10 Francesca Bisello and ESR11 Michele Tognolo are employed by IBA Dosimetry (Germany); ESR12 Vijayaragavan Viswanathan is Co-founder and CEO of Tiino Techmations Pvt Ltd in Coimbatore Area (India), he is Adjunct Professor at Sona College of Technology, Salem Area (India) and he is leading the Avant-Garde incubation program integrating multidisciplinary departments with entrepreneurship, business management as key goals; ESR13 Alvin Sashala Naik has a new ESR position with the INFIERI Marie Curie project at the CNRS Astroparticle and Cosmology laboratory at the University Paris Diderot in Paris; ESR16 Stefan Gohl has a 2-year contract with the Czech Technical University of Prague; ESR17 Natalia Kostiuikhina holds a PhD position in the Medical University of Vienna; and ESR18 Stepan Polansky has a job perspective also at the Czech Technical University in Prague.

Full information on ARDENT is on the web site www.cern.ch/ardent. All presentations by the ESRs and all documentation of the training courses held during the four annual ARDENT workshop are publicly available. The web site has been regularly kept up-to-date throughout the duration of the project and will remain on-line after the end of ARDENT. Latest additions to the web site are:

- A new "legacy" page has been created and will become the home page of the project soon after its

completion. This page contains essential information on each ESR (such as key skills acquired with ARDENT) and where they have gone or will be going after ARDENT

- The full list of publications organised chronologically and by work package

- The PhD thesis produced within ARDENT, if publication of the thesis on a public web site is compatible with copyright rules of the university. This is currently ongoing.

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