



ARDENT

February 2012 – January 2016



Advanced Radiation Dosimetry European Network Training initiative

Marie Curie Initial Training Network under EU FP7 – 4 M€
7 (8) Full Partners and 5 Associate Partners

Coordinator: CERN, Scientist-in-Charge: Dr. M. Silari

CERN (coordinator), Switzerland
AIT Vienna, Austria / Siebersdorf Laboratories
CTU- IAEA Prague, Czech Republic
IBA Dosimetry, Schwarzenbruck, Germany
Jablotron, Prague, Czech Republic
MI.AM, Milano, Italy
Politecnico, of Milano, Italy

ST Microelectronics, Italy
University of Erlangen, Germany
University of Houston, USA
University of Ontario, Canada
University of Wollongong, Australia



Three main technologies

- gas detectors [e.g., gas electron multipliers (GEM), tissue equivalent proportional counters (TEPC)]
- solid state detectors [e.g., Medipix, silicon micro-dosimeters]
- track detector techniques [e.g., CR-39, nano-dosimeters]

We can still add detectors / technologies we think are worth investigating!

- **Main objectives**
 - Radiation dosimetry
 - Micro- and nano-dosimetry
 - Photon and neutron spectrometry
- **Applications**
 - Characterization of radiation fields at particle accelerators (research, industry, medical)
 - Characterization of radiation fields on-board aircrafts and in space
 - Assessment of secondary dose to RT patient
 - Measurement of properties of clinical hadron beams

Researcher Recruitment

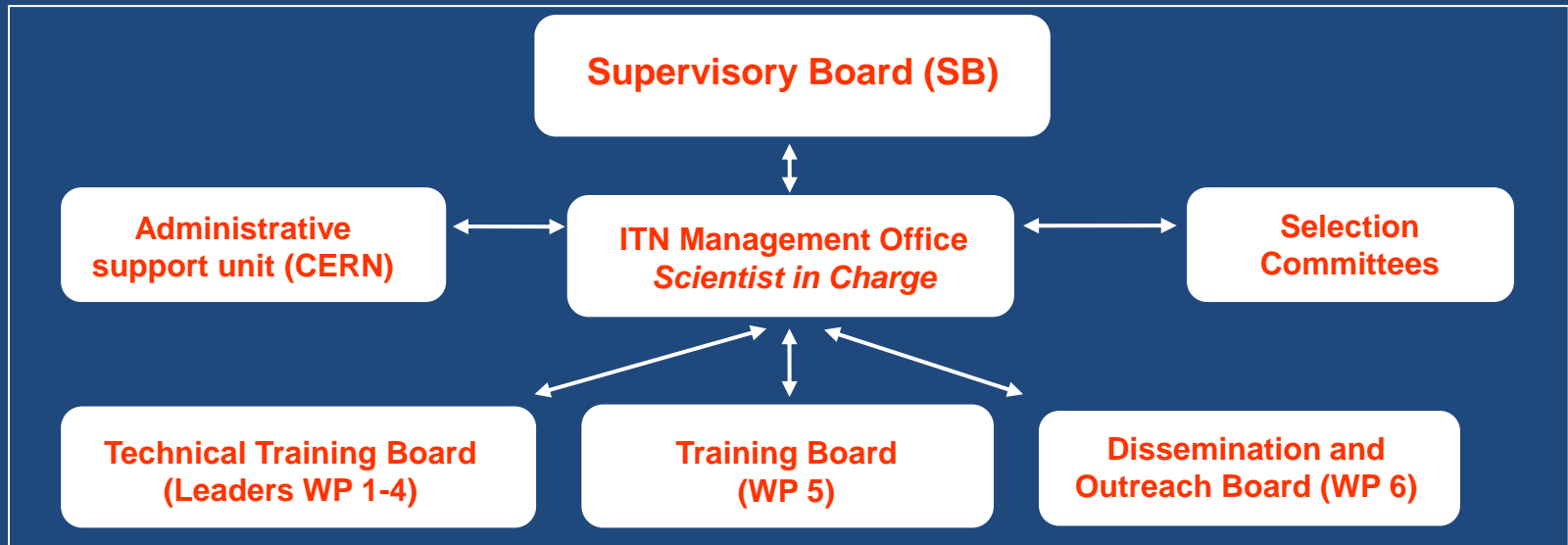
- **15 Early Stage Researchers (ESR), 9 already recruited**
 - 4 at CERN: **Eleni Aza (Gr)**, **Erik Frojd (Sw)**, **Stuart George (UK)**, **Silvia Puddu (I)**
 - 2 at AIT / SL, Vienna
 - 3 at CTU, Prague: **Benedikt Bergmann (DE)**
 - 2 at IBA Dosimetry, Schwarzenbruck
 - 1 at Jablotron, Prague: **Vijayaragavan Viswanathan (India)**
 - 1 at MI.AM, Milano: **Alvin Sashala Naik (Mauritius)**
 - 2 at the Politecnico, Milano: **Chris Cassell (AU)**, **Eleni Sagia (Gr)**
- Up to 1/3 of time can be spent on secondments
- Work performed within the project to be used for PhD
- Generous training allowance for researchers

Work Packages

- **Seven Work Packages**

- WP1: gas detectors (*Sofia Rollet, AIT, Vienna*)
- WP2: solid state detectors (*Zdenek Vykydal, CTU, Prague*)
- WP3: track detectors (*Marco Caresana, Politecnico, Milano*)
- WP4: instrument inter-comparison (*Matteo Magistris, CERN*)
- WP5: training
 - ❖ Individual training programs
 - ❖ Network-wide training
- WP6: dissemination and outreach
- WP7: ITN management

ARDENT Structure



<http://cern.ch/ardent>

Annual workshops

	Main training events & conferences	WP	Lead Institution	Project month
1	Kick-off meeting	All	CERN	4
2	1 st Workshop and training course (Instrumentation & dosimetry 1)	All	AIT	10
3	2 nd Workshop and training course (Instrumentation & dosimetry 2)	All	POLIMI (150 th Anniversary)	22
4	3 rd Workshop and training course (Instrumentation & dosimetry 3)	All	IBA	34
5	4 th Workshop and training course (Instrumentation & dosimetry 4)	All	CTU	46

Training Course at the 1st Workshop in Vienna is DOSIMETRY
 Training Course at the 2nd Workshop in Milano probably MICRODOSIMETRY

Potential synergies

EURADOS Working Groups

- 6 computational dosimetry
- 9 medical
- 11 high-energy radiation fields

CERN-HERMES network between Greek universities and institutions and CERN groups involved in radiation physics/dosimetry/detectors/medical applications

CNAO ?