

## CURRICULUM VITAE ET STUDIORUM

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**Dr. Ing. ANDREA BORIO di TIGLIOLE, Ph.D**

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Dr. Borio graduated in Nuclear Engineering at Polytechnic University of Milan in the academic year 1993/1994 presenting a Thesis on the “Low Energy component of the background signals in the detector ICARUS: evaluation and attenuation”.

In 1995/1996 he served the military duty as Military Police (Carabinieri).

In 1999 he obtained the Ph.D. in “Science and Technology in Nuclear Plants” from the Polytechnic University of Milan presenting a Thesis on “Fast neutron spectrometry in low and very low intensity environmental fields”.

From May 1999 to April 2000 he was appointed external technical consultant of the University of Pavia for the installation of a new instrumentation and control system for the TRIGA research reactor of the University.

In the academic Year 1999/2000 he was appointed “expert of the subject” at the Department of Nuclear Energy of Polytechnic University of Milan for the courses of Nuclear Physics, Nuclear Measure and Instruments, Radiation Sources.

Since May 2000 he is employed full-time at the University of Pavia and in February 2002 Dr. Borio was appointed Director of the Nuclear Research Centre of the University of Pavia and Chief Technical Director of the TRIGA nuclear research reactor of the University of Pavia.

Since academic year 2000/2001 Dr. Borio is tenure of a module of lectures on “Reactor Physics and Nuclear Power Plants” in the post-graduated International Master on “Nuclear and Ionizing Radiation Technologies” organized by the University Institute of Superior Studies of Pavia as a part of the European Schools of Advanced Studies.

In May 2002 he was appointed Coordinator of the Project Committee for the installation of a Cyclotron at the University of Pavia for the production of radioisotopes for medical applications and research purposes. The Project, of the value of about 2.6 million euro, was concluded positively in July 2007.

From September 2003 to May 2005 Dr. Borio was appointed, as external consultant, Deputy Technical Director of the nuclear research plant ESSOR of the Joint Research Centre of the European Union in Ispra (Italy).

In 2003 he was offered to join the International Atomic Energy Agency (IAEA) of United Nation as a full-time Safeguards Inspector (Dr. Borio didn't accept the offer).

Since 2003 is a member of the Research Reactor Operation Group.

Since September 2004 he was appointed Nuclear Site Representative of the University of Pavia and Responsible for all nuclear aspects related to non-proliferation issues.

Since July 2005 he was also appointed Technical Responsible for the nuclear sub-critical plant SM-1 of the University of Pavia.

From July 2005 to July 2006 Dr. Borio was external consultant for the company ANSALDO Camozzi, a multi-national company involved in the construction of nuclear power plants components.

In 2005 he was the Coordinator for a proposal on “Harmonisation of nuclear education and training schemes across EU” presented within the VI Framework Program of the European Union (the proposal involved 12 Research Institution across Europe among which 4 Universities).

Since academic year 2006/2007 Dr. Borio is tenure of a module of lectures on “Experimental Nuclear Reactor Physics and Kinetics” in the under-graduated track on “Control and Safety in Nuclear Plants” hold at the Polytechnic University of Milan”.

In September 2007 Dr. Borio was invited lecturer at the International School of Fusion Reactor Technology organized by the Ettore Majorana Centre of Erice.

### ***Research Activities.***

From 1993 to 1995 Dr. Borio dedicated to the study of the low energy component of background signals in the Liquid Argon Time Projection Chamber detector named ICARUS. He also computed and designed the neutron shields necessary to lower the background contribution to a value acceptable for the rare events physics of the detector.

From 1995 to 1998 Dr. Borio dedicated to the characterization of two new detectors for the measure of very low neutron fluxes (from  $10^{-3}$  to  $10^{-6}$   $\text{cm}^{-2} \text{s}^{-1}$ ) based on proton recoil reactions and Pulse Shape Discrimination technique.

In the same period he also dedicated to the development of practical procedures for the characterization of nuclear waste using Monte Carlo Codes and direct measurements.

From 1998 up today Dr. Borio is dedicated to different research activities as:

- the development of a mixed method based on Monte Carlo Calculation and direct measures for the characterization on neutron fields, with specific interest for nuclear reactors neutron fields;
- the development of a system for the direct measure of the radio-nuclides released in the off-gas channel of the TRIGA reactor of Pavia;
- the development of a method for the direct measure of the radio-nuclides released in the water of the primary circuit of the reactor;
- the development of a method for the diagnostic of thin layers of fissile material for aerospace application;
- the development of a method for the direct measure of nuclear parameters (eg. moderating index) for different materials;
- the development of a method for the evaluation of the neutron field induced by a Radioactive Heat Unit for aero-space applications;
- the development of a new instrumentation and control system for the TRIGA research reactor of the University of Pavia.

### ***Publication.***

Dr. Borio is author and co-author of a total of 49 publications on International Scientific Journals and on Conference Proceedings.

### ***Other Activities.***

In 1987 Dr. Borio graduated at the Montclair Kimberley Academy High School – New Jersey, US – during a one year exchange student program organized by the American Field Service Association (AFS).

Since 1996 Dr. Borio is a member of the Italian Association on Radiation Protection (associated to International Radiation Protection Association- IRPA).

Since 1997 he is Vice-President of the Technical Committee CT 45/345 on “Radiation Protection and Instrumentation” of the Italian Electro-technical Committee.