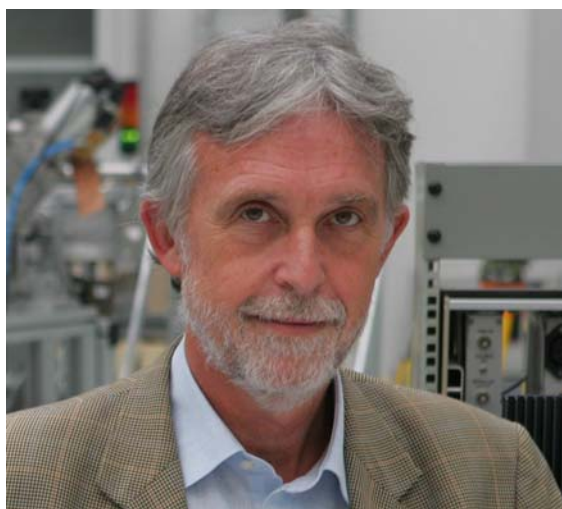


## **IBA-Europhysics Prize 2009 for Applied Nuclear Science and Nuclear Methods in Medicine**

The European Physical Society (EPS), through its Nuclear Physics Board (NPB) awards a Prize, sponsored by Ion Beam Applications (Belgium), every second year to researchers who have made outstanding contributions to Applied Nuclear Science and Nuclear Methods and Nuclear Researches in Medicine. Such contributions represent the breadth and strength of this field in Europe.



The 2009 IBA-Europhysics Prize is awarded to Prof. Pier Andrea Mandò (Department of Physics, University of Florence and INFN) for outstanding and seminal contributions to the application of the Ion Beam Analysis techniques in the field of Cultural Heritage studies, favouring the birth of a new interdisciplinary research area that brings together scientific and humanistic skills.

The research activity of Pier Andrea Mandò started during the seventies in the field of experimental nuclear structure. From the early eighties, Prof. Mandò became increasingly interested and involved in the application of nuclear physics techniques to the broader field of cultural heritage and the study of atmospheric pollution. This activity was initially based on the use of an old, home-modified 3 MV Van de Graaff accelerator at the Physics Department in Arcetri (Florence). In the course of this work he developed, to a routine level, the methodology of external beams (proton and alpha beams extracted into atmosphere) for non destructive measurements of the elemental composition of samples under study. He produced efficient multi-detector systems that enabled the use of ultra-low beam currents, which is a crucial issue in the field of Cultural Heritage. Several of the methodologies he developed have become a worldwide standard in applications which study atmospheric pollution, archaeology, cultural heritage, and geology.

A specific example of Prof. Mandò's work is the study of the elemental composition of handwritten notes from Galileo Galilei. This work fascinated many scholars from both sciences and the humanities, since it indirectly revealed the chronology of some undated notes of Galileo providing important information on the development of his fundamental ideas in physics. Also worthy of specific mention are the extensive applications of differential PIXE (i.e. the sequence of PIXE at different beam

energies), combined with PIGE, for the analysis of paint layer structures in precious paintings by great Renaissance masters.

Over this period a remarkable group of young bright physicists has progressively grown around Prof. Mandò's activities, leading in turn to the development of further new ideas and original equipment.

As the result of his increasing scientific standing and organisational reputation in applied nuclear physics, with the strong support of the University of Florence and the Italian INFN (Istituto Nazionale di Fisica Nucleare), Prof Mandò established a new dedicated laboratory, based on a modern 3-MV tandem accelerator facility. This facility was the first designed to perform both ion beam analysis (IBA) and accelerator mass spectroscopy (AMS). The new laboratory, LABEC (Laboratorio di Tecniche Nucleari per i Beni Culturali) has been in active use in the new campus of Florence University in Sesto Fiorentino since 2004.

Under the direction of Prof. Mandò, LABEC is today equipped with advanced instrumentation, including an external microbeam facility, that provides a state-of-the-art facility for exploiting applied analytical nuclear techniques in several distinct fields.