SIX DECADES OF RESEARCH AND DEVELOPMENT WITH ACCELERATORS IN THE DEPARTMENT OF INTERACTION OF RADIATION WITH MATTER OF THE BARILOCHE ATOMIC CENTER

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In 1960, Prof. Wolfgang Meckbach (1919 – 1998), together with an enthusiastic group of young researchers, technicians, and advanced students, created the first "Ion Beam Laboratory" of Argentina at the Bariloche Atomic Center, dependent on the National Atomic Energy Commission. In this communication we will describe the rich history of scientific research, applications and education and training of human resources, that occurred during the last sixty years of existence of the "Department of Interaction of Radiation with Matter" (DIRM), such is its current name. A special chapter of this story relates to its links with other laboratories, especially in Chile and Brazil at a regional level, and in Germany, Hungary, and the USA, among others. We will also describe the continuous and sustained incorporation of new facilities both for basic research in Atomic, Molecular, and Surface Physics, and for the compositional and structural characterization of samples, with applications in branches such as archaeology, biology, environment, forensic science, analysis of materials for nuclear and non-nuclear use, medicine, nanotechnology, and others. Currently, the DIRM laboratory counts with two electrostatic accelerators of 100 and 300 keV, and a 1.7 MeV tandem accelerator with PIXE, RBS, ERDA, NRA and channelling capabilities, and a chamber for COLTRIMS reaction microscopy. One of its beam lines is dedicated to the analysis of materials and the implantation of ions, with micro beam capacity, with prospects of incorporating a WDS installation. There is also a time-of-flight system for ISS spectroscopy, surface analysis facilities with AES, UPS, XPS, EELS, ISS, DRS, LEED and GIFAD capabilities, and STM and AFM microscopes. Finally, it should be mentioned that DIRM is a member of the Global Network for the Atomic and Molecular Physics of Plasmas (GNAMPP) and the Coordinated Research Project G42008 for "Facilitating Experiments with Ion Beam Accelerators" of the International Atomic Energy Agency.