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Interdisciplinary Physics with Small Accelerators at LNL: status and perspectives

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The Laboratori Nazionali di Legnaro have a long lasting tradition on the use of light MeV ion beams in interdisciplinary research. The AN2000 (2.2MV) and the CN(6.1MV) Van de Graaff accelerators are today almost entirely dedicated to interdisciplinary studies, by providing about 3000 beam time hours/year to internal and external users with active projects in Materials Science, Surface Modification, Radiation Interaction and Damage, Ion Beam Analysis and Channeling, Environmental Sciences, Radiation Biophysics and Medicine, (Micro and nano)Dosimetry, Art and Archaeology. On the average, about 40 experiments are approved yearly by the User Selection Panel.

The two Ion Beams Facilities are versatile and complementary. They provide light ion beams with terminal voltages between 0.3 to 6.1 MV in a wide range of intensities ranging from precision ultra-low intensity (single particle) micro-beams to more intense beams for surface irradiation, ion beam writing and MeV neutrons production from deuteron and proton irradiated Be and Li-based targets. A plurality of ion-surface interaction schemes including forward and backscattering and ion channelling geometries are successfully implemented in collaboration with the end-users.

An overview of the status and perspectives of the two accelerators and related activity will be given.

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