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Online su Zoom**

**Next generation neutrino experiments at
accelerators: the DUNE experiment at FNAL**

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Abstract: Neutrinos have never ceased to provide tantalizing questions and experimental surprises, providing possibly the strongest hints of physics beyond the current Standard Model.

The Deep Underground Neutrino Experiment (DUNE) is an international experiment that will consist of two detectors exposed to the most intense neutrino beam in the world. A "near" detector will record the interactions of neutrinos close to the source, at the Fermi National Accelerator Laboratory in Batavia, Illinois while the "far" detector will be installed in the Sanford Underground Research Facility in Lead, South Dakota. The main topics of The DUNE experiment are:

- neutrino oscillation physics: the main goal is the determination of the neutrino mass ordering and possible CP violation in the leptonic sector. This might provide information on the origin of matter-antimatter asymmetry, one of the fundamental questions in particle physics and cosmology.
- proton decay: its observation would be a sensational discovery in particle physics and providing a key point for grand unification theories.
- observation of neutrinos coming from the collapse of a supernova in our galaxy: the measurement of the neutrino flux coming from this source would provide unique information about the first stage of the nucleus collapse and on the formation of a neutron star. DUNE could also allow for the observation of the formation of a black hole.

Moreover, in consideration of the large statistics, it will provide the most comprehensive set of measurements of neutrino induced reactions and will be sensitive to several signatures of physics beyond the Standard Model.

The link Zoom will be sent by email to all people belonging to the Physics Department and INFN Pavia. Other interested people should register before 27/10/2020 at this link: <https://forms.gle/cxgP3u9Hh36nQsW7A>