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## Physics potential of the LAGUNA/LBNO project

The LAGUNA/LBNO collaboration proposes a next generation neutrino experiment to address fundamental questions in particle and astroparticle physics.

The experiment consists of a far detector, LAr double phase TPC, the fiducial mass of the detector is set to 20 kt in its first stage. The detector will be situated at 2300 km from CERN: this long baseline provides a unique opportunity to study the neutrino flavour oscillations over the first and second oscillation maxima and to explore the  $L/E$  behaviour. The near detector is based on a high-pressure argon gas TPC situated at CERN.

The poster will show the physics potential of this experiment for determining without ambiguity the mass hierarchy (MH) in its first stage and discovering CP-violation (CPV) using the CERN SPS beam with a power of 750 kw.

The impact of the assumptions on the knowledge of the oscillation parameters and the systematic errors are very important and will be shown in detail to prove the force of the experiment assuming realistic and conservative parameter values.

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