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ENUBET: high precision neutrino flux measurements in conventional neutrino beams

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The precision era of neutrino physics requires measurements of absolute neutrino cross sections at the GeV scale with exquisite (1%) precision. These measurements are presently limited by the uncertainties on neutrino flux: the goal of the ERC ENUBET Project is to demonstrate that such uncertainties can be removed employing novel monitoring techniques of the leptons at the neutrino source. In particular, a reduction of these systematics by one order of magnitude can be achieved monitoring the positron production in the decay tunnel originating from the K_e3 decays of charged kaons in a sign and momentum selected narrow band beam. In this talk we present the results obtained during the first year of the Project on beamline simulation, rate and dose assessment, detector prototyping and evaluation of the physics reach. In particular, we present the Reference Design issued by the Collaboration in spring 2017, discussing its achievements and the remaining technical challenges.

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