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BeamEDM –A beam experiment to search for the neutron electric dipole moment

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The neutron Electric Dipole Moment (EDM) has attracted interest as a promising channel for finding new physics for a long time. The existence of a neutron EDM would violate CP symmetry given CPT conservation. This new source of CP violation could explain the baryon asymmetry of the universe. The BeamEDM experiment aims to measure the neutron EDM using a novel technique which overcomes the previous systematic limitation of neutron beam experiments, the relativistic $v \times E$ effect. The experiment exploits the time-of-flight technique with a pulsed cold neutron beam which allows to distinguish between time dependent and time independent effects such as the EDM. A proof-of-principle apparatus has been developed to perform preliminary measurements for the future full-scale experiment intended for the European Spallation Source in Sweden. In this presentation the details of the experimental setup together with the latest results from a data taking campaign in August/September 2020 at the PF1b beamline at the Institut Laue-Langevin in France will be presented.

Primary author: FRATANGELO, Anastasio (Universit t Bern)

Presenter: FRATANGELO, Anastasio (Universit t Bern)

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