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Search for Light Neutral Bosons in the TREK/E36 Experiment

Thursday, 26 May 2022 16:00 (30 minutes)

The Standard Model (SM) represents our best description of the sub- atomic world and has been very successful in explaining how elementary particles interact under the influence of the fundamental forces. Despite its far reaching success in describing the building blocks of matter, the SM is still incomplete; falling short to explain dark matter, baryogenesis, neutrino masses and much more. The E36 experiment was conducted at J-PARC in Japan, it was designed to test lepton universality, and it has additional sensitivity to search for light U(1) gauge bosons. Of particular interest is the muonic K+ decay channel. Such U(1) bosons could be as- sociated with dark matter or explain established muon-related anomalies such as the muon g − 2 value, and perhaps the proton radius puzzle. A realistic simulation study was employed for these rare searches in a mass range of 20 MeV/c2 to 110 MeV/c2. Preliminary upper limits for the A′ branching ratio Br(A′) extracted at 95% CL will be presented.

Attendance

Contact Email

Scheduling Constraints

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