

Search for millicharged particles at the LHC with the milliQan prototype

Tuesday, 28 July 2020 20:00 (15 minutes)

In this talk, I will present the results of a recent search for fractionally charged particles using a data sample of proton-proton collisions provided by the CERN Large Hadron Collider in 2018. This search was carried out with a prototype scintillator-based detector, which allows the first sensitivity to particles with charges $\leq 0.1e$ at a hadron collider. The existence of new particles with masses between 20 and 4700 MeV is excluded at 95% confidence level for charges between 0.006e and 0.3e, depending on their mass. New sensitivity is achieved for masses larger than 700 MeV. I will discuss the concept of the experiment, the results of the search, and the plan for the full milliQan detector given the successful operation of the prototype.

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Primary author: CITRON, Matthew Daniel (Univ. of California Santa Barbara (US))

Presenter: CITRON, Matthew Daniel (Univ. of California Santa Barbara (US))

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