



Contribution ID: 9

Type: **not specified**

Constraints on neutrino electromagnetic properties from COHERENT elastic neutrino-nucleus scattering

Tuesday, March 16, 2021 11:35 AM (10 minutes)

Neutrino electromagnetic properties are important windows in neutrino physics to go beyond the Standard Model. The coherent elastic neutrino-nucleus scattering process is a powerful probe of the neutrino electromagnetic properties, which was first observed in 2017 at the COHERENT experiment by the cesium-iodide (CsI) detector and later in 2020 at the argon (Ar) detector.

In this talk, we present the constraints of neutrino electromagnetic properties from COHERENT CsI and Ar data, including the neutrino charge radii, millicharges and magnetic moments. The combined CsI and Ar limits are also obtained, and compared with other experimental results. We show that the COHERENT data can provide competitive constraints of the neutrino charge radii, in particular for the muon neutrino related components.

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Session Classification: Flash Talks