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Rare Eta and Eta-prime Decays at Hall D/Jefferson Lab

Tuesday, May 28, 2024 5:00 PM (15 minutes)

Measurements of several rare eta and eta' decay channels will be carried out at the Jefferson Lab Eta Factory (JEF). JEF will commence in fall 2024 using an upgraded GlueX detector in Hall D. The combination of highly-boosted eta/eta' production, recoil proton detection, and a new fine-granularity high-resolution lead-tungstate insert in the GlueX forward calorimeter confers uniqueness to JEF, compared to other experiments worldwide. JEF will search for new sub-GeV gauge bosons in portals coupling the SM sector to the dark sector, will provide constraints on C-violating/P-conserving reactions, and will allow precision tests of low-energy QCD. Details on the hardware upgrade and simulations will be presented.

Keyword-1

beyond standard model

Keyword-2

tests of low-energy QCD

Keyword-3

electromagnetic calorimeter

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