Contribution ID: **70** Type: **Poster**

Particle production by γ - γ interactions in future electron-ion colliders

Tuesday, March 11, 2025 5:48 PM (2 minutes)

The particle production in photon-photon (γγ) interactions present in electron-ion collisions is investigated. We present calculations for the total cross sections and event rates related to the production of light mesons [η, η′, f0 and f2], charmonium [η_c and χ_c] and charmoniumlike [X(3915), X(3940), X(4140) and X(6900)] states, considering the EIC, EicC, LHeC and FCC-eh energies. Our predictions demonstrate that experimental studies of these processes are feasible and useful to constrain the properties of light mesons and quarkonium states and shed some light on the configuration of the considered charmoniumlike states.

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Session Classification: Poster session