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4P60 - Millimeter-wave Radiometry and Coherent Thomson Scattering for Studies of Power Balance in COBRA*

Thursday 27 June 2019 16:00 (1h 30m)

Millimeter-wave radiometer and coherent Thomson scattering diagnostics are being developed in order to characterize radiated power and turbulent density fluctuations in pinch plasmas in the COBRA accelerator at Cornell University. The purpose of these measurements will be to study the overall power balance in CO-BRA plasmas under various conditions. An initial radiometer channel will operate in the 94 GHz range. It is envisioned that this will be expanded to a number of channels covering the 10-300 GHz range in order to characterize emission vs. frequency in the mm-wave band. The coherent Thomson scattering system will operate at 1064 nm in the Bragg scattering limit, with detection at several scattering angles in order to characterize the evolution of the density fluctuation spectrum in terms of amplitude and wavenumber. Diagnostic system designs and preliminary results will be presented.

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