Contribution ID: **202** Contribution code: **FRXD1** Type: **Invited Oral Presentation**

Coherence in High Gain FELs: from electron intrabeam scattering to quantum effects

Friday, 12 May 2023 09:00 (30 minutes)

A systematic comparison of experimental data with 2-dimensional semi-analytical modelling of beam collective effects at the FERMI free-electron laser has led to the first evidence of intrabeam scattering in a single pass electron accelerator, and of its contribution to beam quality for the production of longitudinally coherent seeded FELs. A quantistic evaluation of FEL coherence is proposed then, and a conceptual experiment illustrated for a confirmation of theoretical expectations.

Funding Agency

Footnotes

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Session Classification: MC05.4 - Beam Dynamics and Electromagnetic Fields (Invited)