Joint DESY and University of Hamburg Accelerator Physics Seminar

Monday, 15.09.2025 13:00

Hybrid Seminar:

FLASH Seminar Room (28c) & zoom Video Access

Soft X-Rays, Hard Constraints:

Controlling Critical Parameters for High-Repetition-Rate EEHG FEL Operation

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(DESY / MPY)

Abstract

Operating echo-enabled high harmonic generation (EEHG) FELs at high-repetition rates requires overcoming several primary constraints, including achieving stable bunching at high harmonics, controlling mode quality, maintaining laser/electron synchronization, and supporting user-specific operational modes like multi-color generation. This presentation focuses on three interdependent properties of the seed laser and electron beam that critically shape FEL performance. Controlling these properties broadens the operational capability of seeded FELs in the soft X-ray regime by ensuring stability at high repetition rates. This work advances the path to stable high-repetition FELs by clarifying shot-to-shot performance constraints.

NOTE THE UNUSUAL DATE, TIME & LOCATION

W.Hillert, (Univ. HH), I.Agapov (MPY) and M.Vogt (MFL).