SFB1242

SFB 1242 Nichtgleichgewichtsdynamik kondensierter Materie in der Zeitdomäne

UNIVERSITÄT DUISBURG ESSEN

Open-Minded

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Campus Duisburg

Fundamental Principles and Applications of Seeded Free-Electron Lasers

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Elettra-Sincrotrone Trieste & University of Nova Gorica

In this seminar, we will review the principles and some key applications of externally seeded free-electron lasers (FELs), which deliver high-power, fully coherent, ultrafast pulses with variable polarization in the extreme ultraviolet (XUV) and soft X-ray ranges. Seeded FELs support a wide array of scientific experiments by enabling precise control over pulse characteristics. As an example, we will discuss the case of the FERMI FEL facility in Trieste, Italy, highlighting some of the advanced configurations developed there. These include setups for achieving shorter wavelengths, generating phase-locked pulses, and producing structured radiation with tunable orbital and spin angular momenta—capabilities essential for time-resolved studies across various research areas. The seminar will also address the benefits of fully coherent pulses, strategies for their generation and diagnosis, and the requirements for experiments using pulse shaping and coherent control.

Für diese Zeit steht eine Kinderbetreuung nach vorheriger Anmeldung zur Verfügung.

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