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Simulations of Rod-Grating Structures

Tuesday 27 September 2016 15:00 (20 minutes)

Simulation studies for a rod-grating structure driven by THz pulses will be presented in my slides. At first, geometry optimizations are performed in order to get the optimum rod-grating structure for acceleration of relativistic electrons. It is followed by detailed wakefield study for an optimum 100-period structure. Simulations were performed using the VSim, for parameters of the ACHIP experiment in SwissFEL, a planned x-ray free electron laser (FEL) facility to be located at the PSI, Switzerland. Finally, a linearly polarized THz pulse is introduced to interact with the SwissFEL bunch in the optimum structure. The achievable beam quality is analyzed in terms of emittance, energy spread and loaded accelerating gradient.

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