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SP8: First Experimental Characterizations of Electron Beams for THz Options at PITZ

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The Photo Injector Test facility at DESY, Zeuthen site (PITZ) develops high brightness electron sources for modern linac-based Free Electron Lasers (FELs). The PITZ accelerator can also be considered as the ideal machine for the development of a tunable IR/THz source prototype for pump and probe experiments at the European XFEL. The IR/THz radiation generated by means of a SASE FEL and Coherent Transition Radiation (CTR) has been considered and studied. A long-bunch electron beam with 4 nC bunch charge and a short-bunch electron beam (compressed by velocity bunching) are used for the studies of the SASE FEL and CTR, respectively. In this contribution, generation and characterization of both types of electron beams from the PITZ accelerator are demonstrated. The corresponding FEL and CTR calculations based on the measured beam parameters are also presented.

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