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Impact of extreme laser-driven magnetic fields on photon emission and electron acceleration A. AREFIEV, Univ of California - San Diego, D. STARK, LANL, T. WANG, O. JANSEN, CHEDS, Univ. of Texas, E. D'HUMIERES, Univ. of Bordeaux, France, T. TONCIAN, HZDR, Germany — Newly constructed facilities such as ELI are expected to deliver unprecedented laser intensities. A solid density matter irradiated at these intensities will be able to generate strong currents and, as a result, sustain previously inaccessible in laboratory magnetic fields. We have examined the conditions required for the magnetic field generation and the impact that this magnetic field has on photon emission and electron acceleration in the presence of an ultra-intense laser pulse. Generation of extreme quasi-static magnetic fields can ultimately offer an extra control knob for exploring QED effects in experiments with high-intensity lasers.

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