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Strong terahertz generation from relativistic laser-solid interactions YUTONG LI, Beijing National Laboratory for Condensed Matter Physics, Institute of Physics, Chinese Academy of Sciences — Terahertz radiation has been attracted much interest due to increasingly wide applications. Though THz radiation can be generated with various ways, it is still a big challenge to obtain strong tabletop sources. Plasmas, with an advantage of no damage limit, are promising medium to generate strong THz radiation. We have symmetrically studied strong THz radiation from solid targets driven by relativistic laser pulses. The experiments were carried out using the Xtreme Light II laser system at the Institute of Physics, Chinese Academy of Sciences, and the COMET sub-picosecond laser system at the Lawrence Livermore National Laboratory, respectively. THz radiation with a pulse energy of tens micorJ/sr (driven by femtosecond laser), even $\sim$ mJ/sr (driven by sub-picosecond laser) is observed. In this talk, the THz polarization, temporal waveform, angular distribution and energy dependence on the laser energy will be presented. We find that the radiation is dependent on the preplasma density scale length.

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