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Generation of radiation from interaction between ultra short pulse high power laser and plasma NOBORU YUGAMI, KAZUHIRO KOBAYASHI, KENICHI NINOMIYA, Utsunomiya University — The generation of electromagnetic wave from the interaction between short pulse laser and plasmas are studied. The Ti:Sapphire laser (0.2 TW/100 fs) was focused on neutral gas (N_2 : 7.5 Torr) using a lens with a focal length 250 mm. By the interaction between short pulse and plasma, the electromagnetic wave was generated. The frequency of the observed electromagnetic waves was in the microwave range (~ 100 GHz). The radiation pulses of this microwave were detected by the microwave circuit element, constructed by the horn antenna and crystal the detectors. The pulse duration was typically 200 ps (FWHM). It has the polarization in the radial direction and emitted in the conical direction. The emission of the radiation is due to the electron oscillation, because the direction and its intensity were changed by the applied magnetic field.

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