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Experimental Investigations of THz radiation from composite corrugated capillary with reflector

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In this report we present experimental investigations of the THz radiation generated from a corrugated capillary and a blank capillary with reflectors, using a femtosecond electron beam of LUCX accelerator at KEK, Japan. LUCX is capable of generating a train of 4 bunches each with $150\ \mu\text{m}$ (500 fs) duration and $200\ \mu\text{m}$ transverse size. We present measurements of the angular distributions of the THz radiation generated from the corrugated and blank capillary, and their comparison with Particle In Cell (PIC) simulations. We also discuss off-central propagation of the beam in the capillary based on the experimental measurements, PIC simulations and analytical studies.

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