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Characteristic of Terahertz Radiation from a Counter-Pulse Scheme in a Magnetized Plasma MIN SUP HUR, MYUNG-HOON CHO, YOUNG-KUK KIM, UNIST — We studied a novel scheme of generating a quasi-continuous terahertz radiation from counter-propagating laser pulses colliding in a magnetized plasma. In this system, the strong ponderomotive force of colliding pulses leaves a standing oscillation of an electron current around the collision point, which acts as an antenna of the electromagnetic radiation in the terahertz frequency regime. Theoretically it was found that the terahertz amplitude scales with square of P, where P is the power of the driving pulse, while it scales just with P for a single pulse case. So the radiation intensity can be enhanced by tens of times from that of Cherenkov wake scheme driven by a single laser pulse. Furthermore it was found that, due to the growth of the central field, which is a direct result of driven-diffusion of the electric field near the cutoff, the density gradient of the plasma even increases the peak power of the terahertz radiation.

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