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Determination of a High-Power Short THz Single Pulse Detector for FEL

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Terahertz (THz) radiation may pass through dielectric materials, and this ability can be used for a variety of applications. Terahertz (THz) radiation is located between infrared and microwave radiations in the electromagnetic spectrum. FEL produces brief, high-power THz single pulses, and we provide a diagnostic approach for them. The electro optic efficacy is used as a detection method. For the THz pulse, a GaAs crystal is used as a detector. The THz pulse causes the electro-optical crystal to shift polarization, implying that the electro-optic sampling device detects 30psec pulses (or depending on the pulse length of the accelerator). The optical pulse from the electo-optic sampling is coupled to fiber, allowing the optical pulse to be stretched to the order of nanoseconds.

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