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Title: Terahertz Emission Enhancement in InAs Thin Films Using a Silicon Lens Coupler

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Abstract: Enhancement of the pulsed terahertz radiation generated from a lens-coupled InAs thin film excited by a femtosecond laser is reported. A Si hemispherical lens was used as a lens coupler and attached to the substrate-side of a 520-nm-thick InAs film, grown on a Si substrate. An enhancement factor of 7.5 times in the THz wave amplitude from the InAs film with the lens coupler was observed as compared with the bare InAs film. This enhancement is attributed to the improvement in the collimation condition of the radiated THz wave as it propagates through the index-matched lens coupler into free space.