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标题: Experimental comparison of characteristics of magnetic-field-enhanced InAs and InSb Dember terahertz emitters pumped at 1550 nm wavelength

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摘要: Several important characteristics of the magnetic-field-enhanced terahertz radiation from InAs and InSb emitters pumped at 1550 nm wavelength are experimentally investigated. The emission efficiency, pump saturation power and emission spectrum from these two different materials are compared side by side. With the external magnetic field, while the InSb crystal shows a higher THz emission efficiency, it has a lower saturation pump power ( $0.42 \mu\text{J cm}^{-2}$ ) than that of InAs ( $0.86 \mu\text{J cm}^{-2}$ ). They are shown to be much easier to saturate compared to the InAs emitter pumped at 800 nm reported previously. The THz spectrum from InAs has a broader bandwidth than that of InSb, and its shape also varies significantly under higher pump powers with an interesting increase at frequencies above 1 THz. The results could be very helpful in designing and implementing compact, high-efficiency THz sources using low-cost, high-power fiber ultrafast lasers.

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