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Title:Measuring the sampling coherence of a terahertz quantum cascade laser
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Abstract:The emission of a quantum cascade laser can be synchronized to the repetition rate of a femtosecond laser through the use of coherent injection seeding. This synchronization defines a sampling coherence between the terahertz laser emission and the femtosecond laser which enables coherent field detection. In this letter the sampling coherence is measured in the time-domain through the use of coherent and incoherent detection. For large seed amplitudes the emission is synchronized, while for small seed amplitudes the emission is non-synchronized. For intermediate seed amplitudes the emission exhibits a partial sampling coherence that is time-dependent. ©2012 Optical Society of America.
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