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Accession Number

12310376

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Author Unabbreviated

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Title

Coherent optical phonon generation in Bi₃Ge₄O₁₂

Source

Journal of Physics: Condensed Matter, vol.23, no.38, 28 Sept. 2011, 385402 (6 pp.). Publisher: IOP Publishing Ltd., UK.

Abstract

Time-domain spectroscopy of coherent optical phonons in bismuth germinate (Bi₃Ge₄O₁₂) is presented. Utilizing both impulsive stimulated Raman scattering and time-domain terahertz spectroscopy, more than 12 unique vibrational states ranging in frequency from 2 to 11 THz are identified, each with coherent lifetimes ranging from 1 to 20 ps. These modes are highly sensitive to crystal orientation and demonstrate frequency shifts on picosecond timescales consistent with an anharmonic lattice potential. (31 References).