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Anomalous Coherent Oscillations in PbTe from Ultrafast Optical Pump-Probe Measurements MASON JIANG, PULSE Institute, Stanford University, PAULA GIRALDO, IAN FISHER, Geballe Laboratory for Advanced Materials and Department of Physics, Stanford University, DAVID REIS, PULSE Institute, Stanford University — We report on the observation of anomalous coherent oscillations in single crystals of PbTe from ultrafast optical pump-probe measurements. PbTe is a leading thermoelectric material with an unusually low thermal conductivity, which has recently been attributed to strongly anharmonic phonon interactions. In an attempt to understand in greater detail the nature of these interactions, we perform time-resolved, optical pump-probe measurements on PbTe with femtosecond resolution in a range of temperatures from 77K to room temperature. We see previously unreported, low-frequency reflectivity oscillations that decay on the timescale of a few picoseconds and remain robust through a wide range of temperature variation. This talk will discuss possible origins and explanations for the appearance of these oscillations.

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