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【531】 Quantum Material Dynamics Under Pressure

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This poster showcases development of an experimental setup for time-resolved THz time-domain spectroscopy with tunable temperature and pressure capabilities, down to 10K and up to 10GPa. Ultrafast dynamics experiments typically excite materials from their equilibrium ground state to investigate various properties. Pressure control enables direct manipulation of this state. Combining tunable pressure with THz TDS is challenging due to the large THz beam spot size and small sample sizes in diamond anvil cells. To optimize signal acquisition, we investigated parameters like pressure medium and aperture size. We further added an 800 nm optical pump for optical pump-THz probe measurements, enhancing our ability to study phase transitions with sub-picosecond resolution.

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