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【716】Observing a phonon-driven structural phase transition in Sn2P2Se6

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Sn2P2Se6 is a ferroelectric semiconductor with interesting structural properties. In the temperature range between 193 and 221 K, just above the Curie-Temperature, an incommensurate phase emerges. This permanent structural modulation is believed to be the result of two coupled frozen phonon modes.
In our experiment, we photoexcite the material and probe this structural modulation using ultrafast time-resolved x-ray diffraction and observe the dynamics of the two coupled modes across the phase transition. We found that the electronic excitation only couples indirectly via other phonon modes to these two coupled modes.

Authors: Mr KUBLI, Martin (Institute for Quantum Electronics, ETH Zürich); Dr SAVOINI, Matteo (Institute for Quantum Electronics, Physics Department, ETH Zürich); Mr ESPOSITO, Vincent (Swiss Light Source, Paul Scherrer Institut); Mr HUBER , Lucas (Institute for Quantum Electronics, Physics Department, ETH Zürich); Dr BOTHSCHAFTER , Elisabeth (Paul Scherrer Institut); Dr PARCHENKO, Sergii (Paul Scherrer Institut); LANTZ, Gabriel (ETH Zürich); Dr ABREU, Elsa (Institute for Quantum Electronics, Physics Department, ETH Zürich); Dr RITTMANN, Jochen (Swiss Light Source, Paul Scherrer Institut); YABASHI, Makina (RIKEN); TANAKA, Yoshikazu (RIKEN SPring8 Center); KATAYAMA, Tetsuo (RIKEN SPring-8 Center); TOGASHI, Tadashi (RIKEN SPring-8 Center); Prof. JOHNSON, Steven Lee (Institute for Quantum Electronics, Physics Department, ETH Zürich)

Presenter: Mr KUBLI, Martin (Institute for Quantum Electronics, ETH Zürich)

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