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**Attosecond Carrier Dynamics in Quasi-2D SnS<sub>2</sub>** OLIVER MONTI, CALLEY EADS, DMYTRO BANDAK, Univ of Arizona, DENNIS NORDLUND, SLAC, MAHESH NEUPANE, Macromolecular Science & Technology Branch, US Army Research Laboratory — The electronic structure of SnS<sub>2</sub>, a van der Waals layered semiconductor with minimal spin-orbit splitting and an indirect bandgap in the visible, is highly anisotropic. Here, we investigate ultrafast carrier dynamics in SnS<sub>2</sub> as a means to assess intra- and inter-layer coupling. Using resonant photoemission spectroscopy, we show that carrier dynamics in SnS<sub>2</sub> are indeed highly anisotropic. Strong intralayer coupling leads to attosecond carrier dynamics within a layer, while interlayer coupling is much weaker and interlayer hopping occurs on much longer time-scales. These differences arise from the different orbitals contributing to the intra- and inter-layer coupling. Our study highlights with atomic detail the different time-scales involved in charge delocalization dynamics in layered materials and paves the way for tailoring layer-to-layer interactions.

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