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Influence of Mo doping on charge density waves in 1T-TaS₂ studied via laser ARPES

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Controlling charge density waves (CDWs) in quantum materials enables the tuning of their electronic properties, offering potential for future electronic and optoelectronic applications. 1T-TaS₂ exhibits various temperature-dependent CDW phases, which we aim to modify through doping. We introduced molybdenum as a dopant during the crystal growth via the chemical vapor transport method. Using laser-based 11-eV ARPES, we investigated the differences in the electronic band structure between doped and pristine TaS₂ crystals. Our results demonstrate that different CDW phases persist at low doping concentrations, albeit with modified transition temperatures.

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