

Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Tunable electron phonon interaction in MoS₂¹ BASTIAN MILLER, ALEXANDER W. HOLLEITNER, URSULA WURSTBAUER, Walter Schottky Institute and Physics Department, Technical University of Munich and Nanosystems Initiative Munich (NIM), Germany — Transition metal dichalcogenides such as MoS₂ are of current interest for optoelectronic application, but also for studying fundamental aspects of light-matter interaction and excitonic properties in strictly two-dimensional semiconductors. We explore the impact of the charge carrier density on the electron phonon interaction strength by non-resonant and resonant Raman spectroscopy. We utilize MoS₂ field effect structures with polymer electrolyte gate facilitating a change of the 2D electron density by more than two orders of magnitude [1]. We report unusual behavior in polarization and charge carrier dependent resonant Raman spectra that point towards strong electron-phonon coupling in MoS₂ and the importance of excitonic phenomena.

[1] Miller et al., APL 106, 122103 (2015).

¹Supported by ERC via project NanoREAL and DFG via NIM.

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Date submitted: 13 Nov 2016

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