

Abstract Submitted  
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**Temperature Dependence of the Raman Spectra of Mechanically Exfoliated Monolayer MoS<sub>2</sub>** A. GLEN BIRDWELL, FRANK J. CROWNE, TERRANCE P. O'REGAN, PANKAJ B. SHAH, MADAN DUBEY, U.S. Army Research Laboratory, Sensors and Electron Devices Directorate, 2800 Powder Mill Rd, Adelphi, MD 20783, USA, LILI YU, HAN WANG, TOMAS PALACIOS, Department of Electrical Engineering and Computer Science, Massachusetts Institute of Technology, Cambridge, MA, USA, RUSEN YAN, HUILI GRACE XING, Department of Electrical Engineering, University of Notre Dame, Notre Dame, IN 46556, USA — We investigated the temperature dependence of the E<sub>2g</sub><sup>1</sup> and A<sub>1g</sub> peaks in the Raman spectra of monolayer MoS<sub>2</sub> prepared by mechanical exfoliation (ME) onto Si/SiO<sub>2</sub> substrates. Micro-Raman spectroscopy was carried out using the 532 nm laser excitation over the temperature range from 30 to 175 °C. Extracted values of the temperature coefficient for these modes will be presented in conjunction with the effect of excessive laser power on these measurements. These results suggest power densities as low as  $\approx 275 \mu\text{W}/\mu\text{m}^2$  can still cause local heating in ME-MoS<sub>2</sub> monolayer samples.

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