

Abstract Submitted  
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**High-Pressure Electrical, Raman, and Structural Measurements on Lithium Sulfide**<sup>1</sup> KATHRYN HAM, YOGESH VOHRA, GEORGIY TSOI, Univ of Alabama - Birmingham — High-Pressure studies have been conducted on Lithium Sulfide ( $\text{Li}_2\text{S}$ ) to 55 GPa, with electrical, structural, and Raman measurements. Due to the highly reactive nature of the sample in air, the loading was conducted in a glove bag under an inert Argon atmosphere. Four probe electrical measurements using designer diamond anvils showed characteristic semiconducting behavior in  $\text{Li}_2\text{S}$  up to 33GPa from ambient temperature to 10 K.  $\text{Li}_2\text{S}$  was compressed to 55GPa and angle dispersive X-Ray data was collected at the Advanced Photon Source, Argonne National Lab, which showed a phase transition from a face centered cubic phase to a primitive orthorhombic phase. Raman data was obtained for  $\text{Li}_2\text{S}$  at ambient conditions after decompression from 55 GPa. The Raman Spectrum showed the characteristic peak for  $\text{Li}_2\text{S}$  at 372.5 wavenumbers, but had an additional uncharacteristic peak at 327.4 wavenumbers. There is a possibility that the additional uncharacteristic Raman peak is due to the decomposition of  $\text{Li}_2\text{S}$  at high pressure.

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