

Abstract Submitted  
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**Laser Photodetachment Spectroscopy of the  $S_2^-$  Anion<sup>1</sup>** COLIN TYZNIK, JOHN YUKICH, Davidson College — In this experiment, low-resolution photodetachment spectroscopy of the  $S_2^-$  anion was conducted over photon energies in the range of the  $S_2$  electron affinity. The  $S_2^-$  anions are created by a dissociative attachment process. These ions are then stored in a Penning ion trap, and are bombarded by photons of varying energies generated by a tunable, titanium sapphire laser. This results in photodetachment. The ions are counted before and after bombardment, allowing the effect of different photon energies to be observed on the overall detachment probability. The results show structure that could be due to vibrational energy levels, and that may indicate the electron affinity of the molecule. Future experiments will examine more closely the vibrational structure in the photodetachment caused by the different photon energies.

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