Fine structure measurements of high-L Rydberg states of H$_2$.
ETERI SVANIDZE, SPENCER JOHNSON, ERICA SNOW, SUNY Fredonia — Measurement of the fine structure pattern of high-angular momentum Rydberg states provides information about the basic properties of the ion core, such as the polarizability. Recently a resonant excitation Stark ionization spectroscopy (RESIS) apparatus has been constructed at the SUNY Fredonia campus. A Doppler-tuned CO$_2$ laser resonantly excites transitions in a fast molecular beam, which are detected by Stark ionization. We report here our experimental progress in the fine structure measurements of high-L Rydberg states of the ground vibrational state of molecular hydrogen.