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A Precise Measurement of the Stark Shift in the $5P_{1/2} \rightarrow 6S_{1/2}$ 410nm Transition in Indium[1] NATHAN SCHINE, GAMBHIR RANJIT, ANDERS SCHNEIDER[2], ANTONIO LORENZO[3], PROTIK MAJUMDER, Williams College — We are nearing completion of a new precise experimental measurement of the Stark shift (scalar polarizability) for the 410nm, $5P_{1/2} \rightarrow 6S_{1/2}$ E1 transition in atomic indium. We use an atomic beam, which greatly reduces Doppler broadening of the atomic absorption signal, in conjunction with frequency modulation spectroscopy to measure atomic absorption at low atomic densities. We also use both a Fabry-Perot interferometer and a vapor cell saturated absorption spectroscopy to linearize and calibrate the frequency scale for the absorption signal and observed shift. Our preliminary measurement has a statistical uncertainly of less than 1%. A final precision at this level would represent an order of magnitude improvement in precision over the previous measurement. This measurement will test state-of-the-art *ab initio* atomic theory which seeks to improve calculated wave function accuracy in multi-valence-electron Group IIIA atoms such as indium and thallium. Such theoretical accuracy is crucial to help interpret results from symmetry violation experiments in these high-Z atomic systems.

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[3]Class of 2011.

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