Abstract Submitted
for the SES07 Meeting of
The American Physical Society

Photodetachment spectroscopy near the lowest threshold of the O^- ion[1] JOHN N. YUKICH, ROBERT H. MOHR, Davidson College — Numerous experiments have investigated photodetachment spectroscopy in a magnetic field at the $^2P_{3/2} \rightarrow \ ^3P_2$ threshold of ions such as S^- and O^-. The threshold energy is known as the atom's *electron affinity*. In this work we have investigated detachment at the lowest-lying threshold for the O^- ion, the $^2P_{1/2} \rightarrow \ ^3P_2$ threshold. Our experimental apparatus includes a Penning ion trap in which the ions are created, trapped and stored, and a single-mode, amplified diode laser. Our observations yield a quantitative measurement for the threshold energy and an indirect measurement for the spin-orbit splitting of the ion.

[1]Supported by the Petroleum Research Fund

John N. Yukich
Davidson College

Date submitted: 15 Aug 2007 Electronic form version 1.4