

Abstract Submitted
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Creating and trapping molecular negative ions in a Penning ion trap¹ JOHN N. YUKICH, ANDREW MUHICH, Davidson College — Numerous experiments have investigated the properties and dynamics of atomic negative ions. Similar experiments can be conducted with molecular negative ions. Laser photodetachment spectroscopy of such ions is more complicated due to rotational and vibrational structure, and often yields spectroscopic benchmarks such as rotational constants. We report on efforts to create and trap several molecular negative ions including S_2^- , OD^- , and SH^- in a Penning ion trap. The ions are created in the trap by dissociative attachment to a carrier gas. Various techniques are used to confirm the identity of the trapped species, including ion cyclotron resonance methods. Future experiments will focus on laser photodetachment spectroscopy of these and other ions with an eye toward measurement of their molecular constants.

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John N. Yukich
Davidson College

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