

Abstract Submitted
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Infrared Spectroscopy of Reactive Molecules Isolated in a Solid Parahydrogen Matrix¹ DAVID T. ANDERSON, SHARON C. KETTWICH, LEIF O. PAULSON, University of Wyoming — Cryogenic solid molecular hydrogen provides a weakly perturbing crystal environment to study the low temperature (2-5 K) infrared spectroscopy of embedded reactive species. Solid hydrogen is considered a quantum solid since the zero-point translational motion of the light hydrogen molecules dominates the physical properties of the crystal. Photodissociation of molecules embedded in the solid hydrogen provide a means of generating molecular species *in situ* that normally would react with H₂ at room temperature, but at the low temperatures at which hydrogen is a solid these species can be trapped and studied spectroscopically. Recent studies of the photodissociation of ammonia in solid parahydrogen (hydrogen crystals enriched in the para-H₂ nuclear spin isomer) indicate the imidogen radical (NH) can be isolated and studied using infrared spectroscopy. Other photochemical systems are also being explored and the most recent results and analysis will be presented at the meeting.

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