

Abstract Submitted
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Using MuSR to Find Hydrogen-Like Defects in Cadmium Oxide¹ SAMUEL CATHCART, BRITTANY BAKER, Francis Marion University , PATRICK MENGYAN , Northern Michigan University , ROGER LICHTI , Texas Tech University, Y GURKAN CELEBI , Istanbul University — Muons are particles which were originally found in solar rays, along with pions and other particles. These pions, in the solar rays, decay into muons. Muons can be spin polarized by shooting them at a target. In doing so, the spins of the muons become polarized due to conservation of linear and angular momentum. Once polarized, these muons can be implanted into a sample where their spins will interact with the local environment of the sample. This method of muon implanting was used to collect MuSR (muon spin relaxation) data of implanted muons in Cadmium Oxide. This data was analyzed to determine how many muon sites are in the Cadmium Oxide lattice and the charge of the muon sites. The barrier energy between sites and the ionization energy of the neutral Muonium were also determined. This information can be compared with already published hydrogen modeling to determine the likely locations of the muon sites within the lattice.

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