

Abstract Submitted
for the TSF09 Meeting of
The American Physical Society

Characterization of the Motion of Muonium centers in II-IV-V₂ Semiconductors BRITTANY BAKER, PATRICK MENGYAN, ROGER LICHTI, Texas Tech University Department of Physics, GURKAN CELEBI, Istanbul University Department of Physics, KIM CHOW, University of Alberta Department of Physics, KEVIN ZAWILSKI, PETER SCHUNEMANN, BAE Systems — Recent Muon Spin Research (MuSR) has been done to investigate properties of II-IV-V₂ chalcopyrite semiconductor materials. This work has shown that some of the materials appear to have only diamagnetic muonium centers while ZnGeP₂ has multiple neutral muonium centers along with the diamagnetic muonium center. Results for ZnGeP₂ show two distinct interstitial tetrahedral sites (T-sites). At low temperatures, neutral muonium hops between sites by quantum tunneling. Thermally activated hopping takes place from about 100K to 220K and at higher temperatures ionization occurs. Hop rates have been obtained from longitudinal field MuSR depolarization measurements. Preliminary results of motion in II-IV-V₂ samples with diamagnetic muonium centers will be presented.

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Date submitted: 25 Sep 2009

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