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Cyclic Transition Processes for Muonium in SiGe Alloys GANGA JAYARATHNA, LAWRENCE HUDY, PATRICK MENGYAN, BRIT-TANY BAKER, Texas Tech University, Lubbock, TX, BRENT CARROLL, Arkansas State University, Jonesboro, AK, YASAR CELEBI, Istanbul University, Istanbul, Turkey, ROGER LICHTI, Texas Tech University, Lubbock, TX — Muonium equivalent of the donor and acceptor levels of H in $Si_{1-x}Ge_x$ alloy system based primarily on the ionization energies obtained for Mu_{BC} donor and Mu_T acceptor centers. We are currently undertaking longitudinal depolarization measurements in SiGe alloys in an attempt to determine acceptor energy over the full alloy range, to determine the position of band-resonant T-site acceptor level for large x, and to examine other cyclic transition processes. Critical energies associated with the cycle limiting transitions have been extracted from temperature dependence of the amplitudes associated with various components of the longitudinal signal. We are attempting to fit temperature and field dependences of relaxation rates to models derived from tentative cycle assignments. These results will provide a check of the previous assignments and on the transition energy determinations and should access a few energies that have not previously been determined. Progress to date in modeling the temperature dependence of relaxation rates will be discussed.

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