Abstract Submitted
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Design details of a new positron beam system for materials studies[1] Z.H. LIM, R. GLADEN, VARGHESE ANTO CHIRAYATH, P.V. JOGLEKAR, K. SHASTRY, A.R. KOYMEN, A.H. WEISS, Univ of Texas, Arlington — We report here the current status of the development of a state of the art high flux variable energy spin-polarized positron beam facility. Monoenergetic positrons are obtained using high efficiency rare gas moderator (RGM-1). This will allow us to collect data 100 times faster than our current beam system. This beam line will include a 2 meters Time-Of-Flight (TOF) tube, which will result in a higher energy resolution for the TOF spectrometer. The design of the beam line also allows for ambient pressure two gamma coincidence measurements. The ultra-high vacuum system for the beam line has been constructed and was tested for a vacuum of $\sim 10^{-8}$ mbar. The magnetic field for the positron transport has been achieved using a combination of Helmholtz and a series of short solenoid coils, and the magnetic field is $\sim$ 40-100 gauss along the beam line. The ExB positron energy filter and the transport magnetic field were successfully tested using an electron beam. We will discuss the installation of the RGM-1 and the 2 meters TOF spectrometer to the beam line and the final beam tuning in conjunction with the SIMION simulation.

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