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Two Meter Flight Path - Time of Flight Positron Annihilation Induced Auger Electron Spectrometer¹ S. MUKHERJEE, K. SHASTRY, W. MADDOX, A.H. WEISS, U. Texas at Arlington — Details of the design and construction of a new time of flight positron annihilation induced Auger electron (TOF-PAES) spectrometer are presented. The new spectrometer will be equipped with a 2 meter long “TOF” tube that can be biased at a potential different from that of the sample in order to increase or decrease the kinetic energy of the electrons traveling through the tube. The time of flight will be determined from timing signals obtained from the detection of the annihilation gamma (signaling the start of the flight) and detection of the annihilation induced Auger electron at the end of the 2 meter flight path (signaling the end of the flight). The 2 meter long flight path is a factor of two longer than used in previous TOF-PAES systems. The longer flight path can be expected to result in a fractional energy width: $\Delta E/E$ that is $1/2$ as large as the current UTA lab based TOF-PAES spectrometer.

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