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Modeling of charged particles trajectories in order to optimize the design of a new, higher resolution, Time of flight- Positron Annihilation Induced Auger Electron Spectroscopy (TOF PAES) System¹

PRASAD JOGLEKAR, L. LIM, SUMAN SATYAL, SUSHANT KALASKAR, K. SHASTRY, ALEX WEISS², U T Arlington — Time of Flight Positron Annihilation Induced Auger Electron Spectroscopy (TOF PAES) is a surface analytical technique with high surface selectivity. TOF PAES is used to study elemental composition, surface defects, and various energy loss mechanisms. Positrons incident on the sample surface at low energies can be trapped in an image-potential well just above the surface Prior to annihilation. Consequently it is possible to use positron annihilation related signals to selectively probe the top-most atomic layer. This poster presents the results of modeling of the charge particle beam transport system performed in connection with the optimization of the the design of the new TOF-PAES system currently under construction at U T Arlington. The system will incorporate a 2 m long drift tube in order to achieve better energy resolution than our previous TOF-PAES system design which used a 1 m long drift tube

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