

Abstract Submitted  
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**Electron transmission through a PET nanocapillary foil and change of sample properties**<sup>1</sup> SUSANTA DAS<sup>2</sup>, B.S. DASSANAYAKE, J.A. TANNIS, Western Michigan University, USA, N. STOLTERFOHT, HZ Berlin, Germany — Transmission and guiding of 500-1000 eV electrons through a PET nanocapillary foil has been studied. Transmitted electron spectra show significant energy losses which increase with foil tilt angle and energy, indicating that electrons suffer both elastic and inelastic collisions before being transmitted or lost within the foil. Despite energy losses they are found to be guided through the foil. The results suggest that electrons and ion guiding are different processes [1,2]. The asymmetry in the angular distributions of the transmitted electrons suggests a change in the properties of the sample during the measurements, which is attributed to the long period of bombardment by the intense electron beam. It is suggested that hydrocarbons, causing a partial blocking or an increase in conductivity, deposited on the surface or inside the sample and the various inelastic processes between the electron beam and sample are the likely causes of the observed changes. Ref.; 1. S. Das, Ph.D. thesis, WMU, 2009, 2. N. Stolterfoht et al., Phys. Rev. Lett. 88 (2002) 133201.

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