

Abstract Submitted
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Surface Femtochemistry with Hyperthermal Energy Ion Beams¹

M.P. RAY, R.E. LAKE, C.E. SOSOLIK, Clemson University — We are investigating the interactions of hyperthermal energy ions with ultrathin film Schottky diode devices. Specifically, we apply a bias voltage across the device in order to alter the charge transfer dynamics between an incident ion and the metal surface of the Schottky diode. This is an extension of previous work where thermal energy atoms were used to excite electrons-hole pairs and ballistically transport electrons through an ultrathin metal film [1]. In our experiment, we modify the surface electron energy distribution by ballistically transporting electrons to the surface of the thin film. This allows us to tailor the energy level crossings between the incident ion and the metal film and to change the neutralization probability of the scattered beam. Varying the bias voltage will open the possibility for tunable chemical reactions. Preliminary results are presented and discussed in the context of basic ion-surface interactions. [1] H. Nienhaus, H.S. Bergh, B. Gergen, A. Majumdar, W.H. Weinburg and E.W. McFarland, *Physical Review Letters* **82**, 446 (1999).

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