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Ion beam induced hot electron excitations in thin metal films DHRUVA KULKARNI, DANIEL FIELD, DANIEL CUTSHALL, JAMES HARRISS, WILLIAM HARRELL, CHAD SOSOLIK, Clemson University — We present measurements on hot carrier excitations in a metal irradiated by hyperthermal energy ions. Specifically, alkali (Rb^+) and noble gas(Ar^+) ions were used to irradiate a Schottky diode consisting of a thin film of Ag (˜25nm) grown on an n-type Si (111) wafer. Measurements of the resultant current through the device were performed as a function of energy and angle of incidence of the incoming ions. Energy loss of the incident energetic ions inside the metal film leads to the generation of hot carriers which are detected as a kinetically-induced current or "kinecurrent" within the device, analogous to previous measurements of "chemicurrent" [H. Nienhaus, *Surface Science*, **45**, 1-78 (2002)]. We observe the existence of a threshold with respect to the energy of the incoming ions for the generation and detection of hot electrons using Schottky diodes.

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