Abstract Submitted
for the MAR05 Meeting of
The American Physical Society

**Oxidation induced internal exoemission in thin film Mg/Si Schottky diodes** HERMANN NIENHAUS, Experimental Physics, University of Duisburg-Essen, 47048 Duisburg, Germany, STEFAN GLASS — When thin film Mg/p-Si(111) diodes are exposed to oxygen molecules an internal reverse current is observed. Such chemicurrents are due to electron-hole pairs created by the chemical reaction at the metal surface and indicate the non-adiabatic character of chemical energy dissipation. The transient of the current represents the kinetics of the Mg oxidation process and may be explained by a nucleation-and-growth model. Two types of Mg/Si diodes with different homogeneous Schottky barrier heights of 0.7 and 0.8 eV, respectively, could be fabricated by modifying the Mg/Si interface. A dependence between the homogeneous barrier height and the sensitivity of the diode to detect the chemically induced hot charge carriers can be demonstrated. The energy distribution of the internally excited charge carriers deduced from the data may be described by a Boltzmann exponential function with an effective electron temperature of approximately 1600 K.

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Date submitted: 28 Nov 2004 Electronic form version 1.4