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Probing the Surface Potential of Ag(001) with Hyperthermal K^+ Ion Scattering[1] M.P. RAY, R.E. LAKE, C.E. SOSOLIK, Clemson University — Using hyperthermal (10-400 eV) K^+ scattering, we probe the surface potential of Ag(001) in the energy regime where ion beam epitaxy and sputtering occur. In these measurements, hyperthermal energy K^+ ions were scattered from a clean Ag(001) target into a detector. The K^+ were incident at an angle of 45 degrees from the surface normal and energy spectra of the scattered ions were measured at various coplanar final angles with up to three distinct energy peaks observed. We have found that the energy of the scattered ions is dependent on the trajectory of the K^+ near the Ag(001) surface. The open lattice of Ag(001) allows the K^+ to undergo several well-defined scattering events, and using the kinematic factor and the classical scattering simulation SAFARI, we are able to identify the three energy peaks in our data as quasi-single, quasi-double and *zig-zag* ion collisions. Comparing the data to the simulation results, we extract a K^+/Ag surface potential in this important energy range.

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