Abstract Submitted
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Trajectory-dependent formation of hydrogen anions on reconstructed Si surfaces[1] BOYAN OBRESHKOV, UWE THUMM, Kansas State University — We calculated the angular distributions of hydrogen anions that scatter off a (2x1) reconstructed Si (100) surface with an incident kinetic energy of 1 keV as a function of the direction of incidence. Depending on the scattering trajectory, we find anion-formation probabilities between 0.1 and 10 per cent and show that negative-ion formation is more likely for scattering trajectories that are aligned with rows of Si dimers while being unlikely for trajectories that are oriented perpendicularly the dimer bonds. After averaging over trajectories, our numerical results are in good quantitative agreement with the measured H- fractions of M. Maazouz and V. Esaulov (Surf. Sci. 398, 49 (1998)).

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