

Abstract Submitted
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H⁻ lateral collisions with Na-covered Cu surfaces¹ BOGDANA BAHIRIM, Lamar University — This study reports local adsorbate effects observed during lateral collisions between H⁻ ion projectiles and Cu surfaces covered by Na adsorbates. Previous work on Na adsorbed on Cu surfaces at low coverage [1] performed by using the Density Functional Theory, showed that Na displays a very localized interaction with the three closest Cu surface neighbors located right underneath, on the first Cu layer. This study performed with a completely different methodology - Wave Packet Propagation techniques [2] - not only confirms the very confined and localized nature of the Na-Cu interaction, this time from the scattered H⁻ projectile's perspective, but identifies a spatial shape of this interaction which is very important for understanding various ion-surface scattering experiments. In addition, this study clarifies the low adsorbate coverage regime where one-adsorbate modelling can be performed. The one adsorbate modelling may be considered representative for the low coverage experimental situation, only for certain ranges of distances and collision angles that are dependent on the projectile's trajectory relative to the location of the adsorbate atom. [1] S. Yu et al., Surface Science 606 (2012) 1700 [2] B. Bahrim, Surface Science 706 (2021) 121781

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