

Abstract Submitted
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Evolution of size distribution of Cobalt Silicide islands on (5x2) reconstructed Au/Si(111) surfaces¹ HUNG-CHIH KAN, TI-LI LIN, AN-LI CHIN, FU-KWO MEN, Department of Physics, National Chung Cheng University, Chia-Yi, Taiwan, ROC — We report our preliminary result on the observation of the evolution of Cobalt silicide islands on (5x2) reconstructed Au/Si(111) surfaces during high temperature annealing with snap-shot scanning tunneling microscopy (STM). At room temperature, we deposited Co on (5x2) reconstructed Au/Si(111) surfaces in an ultra-high vacuum (UHV) environment. We then annealed the surface at temperatures around 500 °C, and first observed the formation of cobalt silicide islands on the terraces and across the steps. Subsequent annealing causes the islands to evolve: the islands across the step continued to grow while those on the terraces eventually disappeared. The ripening process clearly favors the islands cross the steps. We developed our own image processing algorithm to segment the STM images scanned from the surface into individual islands and terraces. With that we analyze and compare the statistical trend of the evolution of the islands across the steps and that of those on the terraces.

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