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Growth of Au on Si(111) surface[1] A.-L. CHIN, F.-K. MEN, Department of Physics, National Chung Cheng University, Taiwan, ROC — We have studied the growth of sub-monolayer Au atoms on Si(111)-(7×7) surface using scanning tunneling microscopy. By heating the Si substrate after room-temperature Au deposition, we have observed the formation of two types of the (5×2) structure on a (7×7) terrace: one is the (5×2) depressions with an apparent height slightly lower than that of the terrace, the other is the protruding (5×2) islands on the terrace. Comparing total areas occupied by the two types of the (5×2) structure we have obtained the number of Si atoms in the reconstructed layers of a (5×2) unit cell. The surface steps act as good sinks for Au adatoms coming either from the up or down terraces. Widths of denuded zones have been investigated by analyzing the spatial distribution of the (5×2) structure. We will discuss relevant surface diffusion parameters related to the growth of Au.

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