

Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Bistability of Nanoscale Ag Islands on Anisotropic Si(111)-(4x1)-In Surface Stress Template MIAO LIU, University of Utah, YAOYI LI, Tsinghua University, DECAI YU, University of Utah, JINFENG JIA, QIKUN XUE, Tsinghua University, FENG LIU, University of Utah, DAYAN MA, Xi'an Jiaotong University, XUCUN MA, Chinese Academy of Sciences — We present a combined experimental and theoretical study of stability of Ag nanoislands grown on Si(111)-(4x1)-In surface. Experiments show the existence of two stability regimes: a conventional regime at low temperature where only one island shape is stable, and an unconventional regime at room temperature (RT) where isotropic compact islands coexist with anisotropic elongated ones. First-principles calculations show the unusual bistability at RT arises from the fact that the Ag nanoislands are under anisotropic stress, further supported by a continuum model of island shape evolution as a function of island size.

Miao Liu
University of Utah

Date submitted: 09 Jan 2009

Electronic form version 1.4