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An STM Study of Nucleation and Growth of Co Nanostructures on Stepped Cu(775)[1] NADER ZAKI, DENIS POTAPENKO, RICHARD OSGOOD, JR., Columbia University, PETER JOHNSON, Brookhaven National Lab
— We conduct an STM study of nucleation and growth of Co nanostructures on stepped Cu(775) surface. This surface has a relatively narrow terrace width of 1.4nm, which should allow a different growth mode than on previously studied step-edge growth of Co bilayer nanoislands on Cu(111). Growth of other metals on narrow stepped surfaces is known to favor step-edge nanowire formation. On the bare Cu(775) surface, STM imaging at 300K is blurred by Cu-atom surface diffusion; low-coverage Co deposition modifies this behavior by step pining. The effects of deposition rate and substrate temperature are investigated, and specific conditions for Co nanowire growth and stability will be discussed.

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