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Direct evidence on the preferable growth direction of the gold stripe on reconstructed Au(111) surface SOOHYON PHARK, ZHEONG G. KHIM, School of Physics and Nano-Systems Institute, Seoul National University, Seoul 151-747, Korea, SEOKWON YOON, Department of Physics, The Catholic University of Korea, Puchon 420-743, Korea — We have investigated the growth of nanometer-scale gold stripes on reconstructed Au(111) surface using scanning tunneling microscopy (STM). The stripes are caused by the moving tip of the STM operated in ultrahigh vacuum at room temperature. Different from what has been reported previously, we find, by directly comparing the direction of the stripes and the orientation of the underlying lattice, that the gold stripes grow preferentially along [1,-1,0] direction and its threefold symmetric directions at (111) surface of fcc structure. We also find that the scanning direction of the STM tip does not affect the direction of the stripe growth although the growth rate is suppressed remarkably when the scanning direction is close to [1,1,-2] direction of Au(111) surface.

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