

Abstract Submitted
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Si nanowires on Ag(110): an experimental and electronic structure studies¹ A. KARA, Department of Physics, University of Central Florida, B. EALET, C. LEANDRI, CRMCN-CNRS, Luminy, France, H. OUGHADDOU, Universite de Cergy, France, G. LELAY, B. AUFRAY, CRMCN-CNRS, Luminy, France — Si nanowires images on Ag(110) were obtained using Scanning Tunneling Microscopy. Wires with tailored width and very large lengths were observed with the wires growing along the open channels of Ag(110). For those wires 5 lattice constants wide, we observed 4 distinct bright spots across the wire with a periodicity of 2 times the Ag nearest neighbor distance along the wire. From the theoretical side, we propose several structures of Si on Ag(110) where Si atoms occupy either single or double layers, with the second layer may be formed by single or pair of atoms; and the first layer may be commensurate or incommensurate with the substrate. Comparison between calculated and observed STM images will be presented and a detailed analysis of the electronic structure of all the proposed structures will be discussed.

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