

**Title:** Interaction of group III and IV metals with Si(100) surface in temperature range from 20 to 800 K

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**Abstract:** Interaction of group III and IV metals with Si(100) surface was studied by STM (Scanning Tunneling Microscopy) and AFM (Atomic Force Microscopy) in temperature range from 20 to 800 K. Adsorption and hopping of single metal adatoms on Si(100)-c(4×2) reconstruction can be observed by STM at low temperatures. Activation energies and frequency prefactors for hopping of single indium atoms were measured by two methods – direct STM measurement at low temperature and Kinetic Monte Carlo simulations of layer growth at room temperature. Group III and IV atoms self-assemble into single atom wide chains on Si(100) surface at about room temperature. Atomic and electronic structure of the chains was investigated by means of STM and dynamic non-contact AFM.

**Keywords:** Si(100), STM, AFM, adsorption, diffusion