

Abstract:

Process of reconstruction of Si(111) surface after vapor deposition of thallium and subsequent desorption is studied by STM. Dependency of surface coverage on temperature is determined and this dependency is afterwards used for determination of ideal conditions for creation of surface with the biggest possible part with metastable reconstructions (mostly (5x5) and (9x9)). This surface is then covered by vapor deposition by different amounts of Al and possibility of creation of magic clusters and other interesting structures is investigated. Structural models for magic clusters on (5x5) are proposed. The work includes description of experimental devices used in measurements as well as description of procedures and physical principles connected with functioning of STM.