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The alpha-Ga (010) Surface Investigated by Room and Low Temperature Scanning Tunneling Microscopy NATALYA PERTAYA, KAI-FELIX BRAUN, Ohio University, Clippinger Laboratories USA, K.-H. RIEDER, Institut für Experimentalphysik, Arnimallee 14, 14195 Berlin, Germany — Low temperature STM, room temperature STM and helium atom sccattering (HAS) was used for an investigation of the Ga(010) surface. Here the surface has been imaged for the first time in the reconstructed low temperature phase with scanning tunneling microscopy and the unit cell was determined in detail. The presence of a charge density wave is not expected apriori on the Ga(010) surface, but was identified unambiguously with tunneling spectroscopy. Surprisingly, two domains form well ordered parallel stripes. At room temperature the atomically resolved structure of the 1x1 phase of Ga was imaged for the first time with the normal imaging mode. An extensive helium atom scattering study of the surface phonons complements the investigation of the Ga(010) surface.

Natalya Pertaya

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