FOXSI
Functional Oxide Surfaces and Interfaces

EINLADUNG

zum Vortrag
von

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Scanning tunneling microscopy/spectroscopy of $LaAlO_3/SrTiO_3$ heterostructures

am

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Abstract:

We report on the initial growth nature of sub-unit cell (UC) SrTiO3 (STO) and LaAlO3 (LAO) films formed on top of STO(001)-(root13×root13)-R33.7º substrate surfaces, using a scanning tunnelling microscopy/spectroscopy (STM/STS) combined with pulsed laser deposition (PLD).
The STM/STS imaging of sub-UC LAO islands reveals that a TiOx layer of the SrTiO3 substrate has
transferred to the topmost surface of the LaAlO3 layer, indicating that the TiOx layer can be viewed as a graphene-like one unit-cell TiOx sheet. This structure can be regarded as a new oxide nano material. Further, we found that the surface structures affects electron transport properties at LAO/STO interfaces. These findings on the atomic-scale nature of perovskite growth lead to preparation of higher-quality thin films and surfaces/interfaces exhibiting novel electronic and magnetic properties.

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