TRR 80 Sonderseminar

Am Mittwoch, den 4. Mai um 10:45 Uhr

spricht

Dr. Ulrike Lüders

CNRS-ENSICAEN & IRMA, Caen, Frankreich

über das Thema

Geometrically confined doping in $LaVO_3/SrVO_3$ superlattices

A certain number of theoretical predictions show that in complex oxides the confinement of t_2g electrons to two dimensions can alter strongly the physical properties of these systems compared to their three dimensional counterpart. To approach experimentally the two dimensional limit we propose geometrically confined doped superlattices as $LaVO_3$ / $SrVO_3$. Here, a one unit cell thick layer of $SrVO_3$ is introduced between insulating $LaVO_3$ layers to create conducting zones with a two dimensional character. We synthesized this kind of superlattices by PLD on $SrTiO_3$ (001) substrates. The two dimensional character of the doped charge carriers influences strongly the physical properties of the superlattices. While the bulk solid solution is an insulating antiferromagnet, in the superlattices room-temperature magnetism is observed due to the reduction of the bandwidth. Furthermore, a transition from a high temperature incoherent transport phase to a low temperature metallic phase is shown to be connected to a structural transition from a metrically tetragonal to monoclinic phase. We will show that these effects are related to the injection of charge carriers in confined regions of the superlattices.

Gäste sind herzlich willkommen!
Der Vortrag findet im T-2003/ Hörsaalzentrum Physik, Universität Augsburg statt.

Gastgeber: Prof. Dr. Ulrich Eckern, Prof. Dr. Thilo Kopp
www.trr80.de