o.m8.p3 **The Influence of Boundaries to Properties of Electronic Layered Crystalline Structures.** S.M. Stojkovic, *Institute of Physics, Faculty of Sciences, University of Novi Sad, Trg Dositeja Obradovica 4, 21 000 Novi Sad, Yugoslavia.*
Keywords: electron spectra, space distribution, energy gap, localized states

Using the two-time temperature Green's function method, the dispersion law and spectral weights of electrons in layered crystalline structures (thin film and superlattice) were found. The influence of boundary perturbation parameters onto dispersion law and space distribution of electron was analyzed.

Presence boundaries as well as the energy change of boundary parameters on boundaries of these structures lead to new properties and to specific effect in comparation to bulk ones, which are important for pure science and for application. One of absolutely basic features of these structures is an appearance of a gap in electron spectra due to boundary and perturbed conditions. Analyzing spatial distribution of electrons it was shown that localized energy states can appear as a result of suitable choice of perturbation energy parameters.

o.m8.p4 **Adsorption of oxygen on copper films on a Pt(111) surface: structure and composition**, J.S. Tsay, T. Mangen, R.-J. Linden, and K. Wandelt, *Institut für Physikalische und Theoretische Chemie der Universität Bonn, Wegelerstraße 12, D-53115 Bonn, Germany.*
Keywords: surface crystallography.

The structure and composition of oxygen exposed Cu films on Pt(111) have been studied by low-energy electron diffraction (LEED), Auger electron spectroscopy (AES), and ultraviolet photoelectron spectroscopy (UPS). From the LEED observations it is concluded that the copper growth is epitaxial and rotationally commensurate to the Pt(111) substrate for copper coverages larger than 1.2 ML. After exposing the 1.2 ML Cu/Pt(111) system to 12 L O_2 at 320 K, no new feature was observed in the LEED patterns. After subsequent annealing the system at temperatures between 600 and 700 K, a 2x2 structure of a copper oxide was observed. From the AES and UPS measurements, co-existence of a copper oxide and a Cu-Pt alloy were observed. At higher temperatures, most of the copper adatoms diffuse into the Pt(111) substrate to form an alloy while the oxygen desorbs. For oxygen adsorption on copper films, the concentration of adsorbed oxygen in an oxygen-saturated copper film is higher for a not completed copper layer because of more edge sites at the copper islands and larger Cu-Cu distances due to pseudomorphic growth. A high adsorption rate was observed at the beginning caused by the bond of oxygen onto the film. From sputter profiling measurements of three differently prepared O/Cu/Pt(111) films one can see that the oxygen distribution is not the same and in neither case homogeneous. For a film prepared by alternate steps of copper deposition and oxygen adsorption, the amount of oxygen at both interfaces film/vacuum and film/Pt is higher than within the film.