

In the present thesis structure, morphology, chemical and electronic properties of the Pt - Au/tungsten oxide model system were investigated by means of RHEED, AFM and PES. The epitaxial tungsten oxide thin films were prepared by oxidation of W(110) single-crystal surface using a RF oxygen plasma source followed by thermal annealing. Gold and Platinum were deposited "in-situ" by evaporation. Gold or platinum deposition led to the growth of oriented particles having (111) epitaxial plane as well as to the growth of polycrystalline phase. Platinum encapsulation was proved by CO adsorption observed by SRPES. Deposition of the second metal led to the formation of core - shell bimetallic clusters. Detail structure of the bimetallic system depends on the order of deposited metals and the substrate temperature. Thermal stability of the system was investigated by heating up to 600 °C.