

This work is concerning the study of model ceria based catalysts structure by methods of electron diffraction RHEED and photoelectron spectroscopy XPS. The influence of deposition conditions and substrate on the growth of epitaxial cerium oxide films on copper single crystals is described in detail. The work then describes the interaction of cerium and tin in model systems and the creation of SnCeO_x mixed oxide and its structure. In the last chapter, the interaction of palladium with cerium and tin oxide layers is examined, and the creation of palladium bimetallic alloys is described.