

The diploma thesis concerns the study of catalytic layers Pt-CeO<sub>x</sub> used in Proton-Exchange Membrane Fuel Cells. Employing a Transmission Electron Microscope and Near-Ambient Pressure Photoelectron Spectroscopy, morphology, particle size distribution, chemical composition, and effects of fuel cell conditions were studied. This work contributes to the clarification of the dynamic character of the prepared catalytic layers in reactive conditions, which is essential for understanding their catalytic activity and durability.