

This work is studying the layers of cerium oxide (doped with platinum) prepared by magnetron sputtering on different types of substrates. Attention is focused mainly on modes of growth and morphology of  $(Pt-Ce)O_2$  layers. The study was carried out by scanning electron microscopy (SEM) and transmission electron microscopy (TEM). The specimens (lamellas) were created by using focused ion beam (FIB) with respect to transparency for electron beam and material contrast. The emphasis was on elimination of redeposition and minimize the amorphous layer of lamella. Representation of elements was determined by energy-dispersive spectroscopy (EDX) and electron-energy loss spectroscopy (EELS).