

In this thesis the optical properties of the plasma polymers are studied using the spectroscopic ellipsometry. The basic principles of ellipsometry are described. The suitability of various ellipsometric models for the modelling of plasma polymer thin films is compared. The stability of films prepared by sputtering of nylon is studied. The influence of the deposition conditions on the optical properties of hydrocarbon plasma polymer film is characterized. Usability of the ellipsometric roughness for the characterization of the nanostructured hydrophobic surfaces is tested. The filling factor of metal/plasma polymer nanocomposites is determined and compared with another methods of filling factor determination.