

Thin metal films deposited on the polymer substrates are of fundamental importance for the formation of conductive structures on the surfaces of the polymers. In the case of discontinuous layers of silver or copper, so-called anomalous absorption occurs in the visible range of the spectrum. This phenomenon can be used to create different sensors, eg. based on surface enhanced Raman spectroscopy.

In this work, the deposition of discontinuous Ag and Cu layers on PEEK and PET polymer foils and glass and polished silicon was used studied. The magnetron sputtering was chosen for deposition at very low pressure and the effect of pressure on the growth of these films was investigated. It was found that at a pressure of 0.2 Pa the copper layers on the two polymers grew almost smooth, while the island structure appeared at a pressure 1.2 Pa. In the case of Ag deposition, the island structure of the layer appeared already at a pressure of 0.2 Pa, and differences in the growth of the Ag films in dependence of the the substrate were observed.