

The doctoral thesis deals with the experimental study of the low-temperature plasma designated for the preparation of thin films using the method of physical sputtering. It describes measurements which were realized on two types of devices – on the low-pressure plasma jet sputtering system and on the planar magnetron. The plasma diagnostics in the discharge excited in the pulse regime represent the main theme of the thesis. The discharge in the low-pressure plasma jet was studied by means of an electrostatic Langmuir probe, in the case of the planar magnetron, mass spectroscopy with energetic as well as time resolution was used. To understand the results achieved in the pulse generated plasma good knowledge of the basic continuous DC regime of the discharge excitation is essential. Therefore a considerable part of the thesis deals purely with the continuous DC discharge. In the case of the low-pressure plasma jet, the attention was focused also on the characteristic property of this plasma source, which is the flow from the jet.