

This work concerns the low-temperature plasma diagnostic in the dcdischarge in the cylindrical magnetron in argon. For measurements Langmuir and emissive probes were used. The aim of this diploma work was the diagnostics of the radial plasma parameters especially with the improved construction of the emissive probe and the verification of it's use for the determination of the plasma potential. The work was also focused on the influence of the angle between the emissive probe loop and the magnetic field to the emissive probe data. In the experimental part the cylindrical magnetron system, the construction of Langmuir and emissive probes and the probe circuit are described. After that the software for the data acquisition created using Agilent VEE programming language and evaluation of probe data is explained.

Probe characteristics were measured by the Langmuir probe in the dependence on the radial position. In such way the radial profiles of the plasma potential, floating potential and electron density were determined. Measurements were performed at different values of the pressure, magnetic field and the discharge current.

The floating potential of the strongly emitting probe was used to measure the plasma potential at different magnetic field strengths.