

The ball-pen probe is a relatively new diagnostic method, that has been designed for direct measurement of plasma potential in magnetized plasmas. Nowadays, it is routinely used at several high-temperature plasma devices in Europe and it has been tested also in conditions of low-temperature plasma, which are substantially different from that of high-temperature plasma. The measurements performed so far showed, that ball-pen probe could be used also in low-temperature plasma. However, more measurements were needed to prove the applicability of ball-pen probe. Therefore, the main aim of this work is to compare the method of ball-pen probe with simultaneous measurements using Langmuir and emissive probe. Measurements were performed in DC discharge of cylindrical magnetron at various discharge conditions and radial positions of probes.