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**Passive Optical Emission Spectroscopy for the electric field measurements in DC and RF sheaths in IShTAR**[1] ANA KOSTIC, Ghent University; Max-Planck-Institut fr Plasmaphysik, KRISTEL CROMBE, Ghent University; LPP-ERM-KMS, TEC partner, RUDOLPHE D'INCA, JONATHAN JACQUOT, ROMAN OCHOUKOV, Max-Planck-Institut fr Plasmaphysik, ANTON NIKIFOROV, Ghent University, JEAN-MARIE NOTERDAEME, Ghent University; Max-Planck-Institut fr Plasmaphysik, ISHTAR TEAM TEAM — Direct, non-intrusive measurements of the electric field are essential for the progress in understanding the RF sheath physics. This is especially true in the case of the ICRF antenna - plasma edge interaction in fusion devices. Here the rectification of the RF fields near the plasma-facing components of the antenna leads to the development of DC electric fields. These DC fields accelerate the ions from the plasma towards the antennas plasma-facing components thereby enhancing physical sputtering and release of impurities. IShTAR is a device dedicated to the investigation of the edge plasma-antenna interactions in tokamak edge-like conditions. It is equipped with a helicon plasma source and a single-strap ICRF antenna. We present here our initial approach to measure the electric fields - the passive optical emission spectroscopy concentrating on the changes of the He-I spectral line profiles introduced with the external electrical field, i.e. the Stark effect. To be able to fully control the operating parameters, at the first stage of the study the measurements are conducted on a simple electrode installed in the IShTAR plasma source at the centre of the plasma column. At the second stage of the study, the measurements are preformed in the vicinity of the ICRF antenna of IShTAR.



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