

Characterization of Helium plasmas in the GOLEM tokamak

Svoboda V.¹, Macha P.¹, Krbec J.^{1,2}, Adamek J.², Stockel J.^{1,2}

¹ Faculty on Nuclear Sciences and Physical Engineering, Czech Technical University in Prague, Brehova 7, 115 19 Prague, Czech Republic

² Institute of Plasma Physics, Czech Academy of Sciences, Za Slovankou 1782/3, 182 00 Prague, Czech Republic

Investigation of Helium discharges in tokamaks is of increasing importance, because the future ITER tokamak will operate with Helium during its initial operational phase. The GOLEM tokamak can routinely achieve Helium discharges and the contribution demonstrates some it's interesting features:

- * The electron temperature determined from the ratio of He spectral lines agrees reasonably with that derived from plasma conductivity.
- * Turbulent fluctuations of the floating potential measured by an array of Langmuir probes propagate in the radial direction with phase velocity in the range of 1 km/s, and their correlation length is significantly higher than 10 mm.
- * A strong decorrelation of turbulent fluctuations is observed in the range of radii where the radial electric field changes its orientation.

This research has been supported by the Grant Agency of the Czech Technical University in Prague, grant No. SGS17/138/OHK4/2T/14, Research of the Magnetic Field Confinement in Tokamak.