

Tokamak GOLEM for fusion education - chapter 7

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Main focus of tokamak GOLEM, as the oldest still operational tokamak, is on educational activities [3]. Not only tokamak GOLEM team consists mainly of students experiencing work at the experimental reactor but also, due to the unique remote control ability of GOLEM, various educational sessions' participants from all over the world handle GOLEM online.

The tokamak GOLEM team carried out research in various fields of plasma physics and diagnostics as simple students' projects following actual problems: i) Installation and tests of the new HXR detector based on YAG scintillator were done. The detector was utilised in order to investigate periodic losses of runaway electrons. ii) Studies of magnetic islands were conducted with use of an array of 16 Mirnov coils. After the reconstruction of previous incomplete results [2], the method of coherence of spectrograms of B_θ fluctuations brought new insight to the topic. iii) Unification of previous virtual reality models of the whole tokamak GOLEM was done, generating a new one, which introduces format x3dom used to implement a modern approach to intuitive controls. iv) A double rake probe with Langmuir pins was installed in order to reproduce and extend previous measurements of zonal flows with this probe in edge plasma on CASTOR [1]. The probe was also used for measurements of fluctuation profiles in order to classify edge plasma turbulence. v) Radial profile of Mach number was measured by double Langmuir probe, i.e. Mach probe. vi) Vacuum chamber wall conditioning experiments took place at tokamak GOLEM with the purpose of efficient specification of its ideal technological parameters and influence on discharge parameters. vii) The influence of the toroidal magnetic and electric field polarity on the shot start-up phase of the discharge was investigated.

References

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