The GOLEM tokamak bibliography

The tokamak GOLEM team

January 19, 2026

Official GOLEM Articles

Conference proceedings

Malec et al.: Tokamak GOLEM for fusion education - chapter 16/II **Malec-2025-ECPP**

S. Malec et al. "Tokamak GOLEM for fusion education - chapter 16/II". In: vol. 51A. Europhysics conference abstracts. 2025. ISBN: 111-22-33333-44-5. URL: https://lac913.epfl.ch/epsppd3/2025/html/PDF/P4_184.pdf.

Sedmidubsky et al.: Tokamak GOLEM for fusion education - chapter 16/I **Sedmidubsky-2025-ECPP**

V. Sedmidubsky et al. "Tokamak GOLEM for fusion education - chapter 16/I". In: vol. 51A. Europhysics conference abstracts. 2025. ISBN: 111-22-33333-44-5. URL: https://lac913.epfl.ch/epsppd3/2025/html/PDF/P4_181.pdf.

Bachelor projects

Jakub Dlouhý: Studies of plasma coherent MHD oscillations on a tokamak device **Dlouhy-2025-BachProj**

Jakub Dlouhý. "Studies of plasma coherent MHD oscillations on a tokamak device". Bachelor project. 2025. URL: http://golem.fjfi.cvut.cz/wiki/Presentations/Students/BachelorProjects/bp_fi_fptf_25_dlouhy.pdf.

Abstract: The thesis is focused on the detection and analysis of magnetic is- lands in plasma using frequency, correlation and coherence analysis and their implementation on the GOLEM and COMPASS tokamaks. Data from the GOLEM tokamak were measured during 2 experiments and the data from the COMPASS were collected from the database. Magnetic islands-tearing-mode instabilities forming on resonant, magnetic surfaces-disrupt plasma confine- ment and can lead to disruptions. Their presence is manifested by periodic oscillations of the poloidal magnetic field, which can be detected using in- ductive sensors. Procedures in Python were developed, namely the Fourier transform, spectrogram, Pearson correlation and coherence method, which were used to identifying the structure of islands from data obtained from Mirnov coils. The experiment on the GOLEM tokamak showed the existence of magnetic islands with poloidal mode number $m \leq 3$ for a edge safety factor $q(a) < 4$. For $q(a) > 4$, mainly islands with $m = 2$ were identified. This finding indicates a value of the peaking factor for the current profile to $\nu \approx 2$ for the GOLEM tokamak. Analysis of data from the COMPASS tokamak confirmed $(2, 1)$ islands.

Kryštof Nosek: Měření závislosti potenciálu plazmatu na parametrech výboje tokamaku GOLEM **Nosek-2025-BachProj**

Kryštof Nosek. "Měření závislosti potenciálu plazmatu na parametrech výboje tokamaku GOLEM". Bachelor project. 2025. URL: http://golem.fjfi.cvut.cz/wiki/Presentations/Students/BachelorProjects/bp_fi_fptf_25_nosek.pdf.

Abstract: This thesis focuses on measuring the dependence of plasma potential on discharge parameters in the GOLEM tokamak. The first part is dedicated to the theoretical background of plasma physics, the principles of thermonuclear fusion, and the description of the tokamak with special emphasis on the GOLEM device. Subsequently, the basic diagnostics used on this tokamak are introduced. The second part concentrates on the principles and construction of the Langmuir probe and the ball-pen probe. Measurement using a combined Langmuir and ball-pen probe is also described. This section also includes an introduction to the topic of shear layers and transport barriers. The third part describes the experimental setup and the data processing methodology. Based on the obtained data, the discharge regimes in hydrogen and helium are first compared, followed by an investigation of the influence of discharge parameters on the formation of transport barriers in helium discharges. The thesis concludes with a discussion of the results and their summary.

Tomáš Březina: Rychlé měření iontové teploty na tokamaku GOLEM v rámci různých výbojových režimů **Brezina-2025-BachProj**

Tomáš Březina. "Rychlé měření iontové teploty na tokamaku GOLEM v rámci různých výbojových režimů". Bachelor project. 2025. URL: http://golem.fjfi.cvut.cz/wiki/Presentations/Students/BachelorProjects/bp_fi_fptf_25_brezina.pdf.

Abstract: This bachelor thesis is dedicated to fast ion temperature measurements in the edge plasma of the GOLEM tokamak using a ball-pen probe (BPP) with a time resolution of up to 5 µs. For this purpose, a measuring system was connected and fast ion temperature measurements were performed in the helium plasma of the GOLEM tokamak. The method of fast ion temperature measurement presented in earlier article [2] is refined with additional optimization methods. The unique time resolution, which is lower than the typical lifetime of turbulent structures ($\approx$ 10 µs), allows the study of ion temperature fluctuations and their statistical properties with regard to their turbulent nature. The results are compared with the results of measurements on the COMPASS tokamak. A similar analysis of selected discharges from the GOLEM tokamak in hydrogen plasma was also performed.

High School Students‘ Professional Activities

Miscellaneous

Unofficial articles (without GOLEM cooperation/authors)