



Figure 1: The GOLEM tokamak captured at the moment of the discharge (plasma is seen in the center of the chamber) with the statue of its mascot, the mythical clay Golem (believed to be hidden near the faculty [?]) on top.

The reinstalled tokamak [Svoboda et al., 2010] (major and minor radius of the vessel is  $R_0 = 0.4$  m and  $r_0 = 0.1$  m, respectively) with circular limiter geometry operates in a modest range of parameters: toroidal magnetic field  $B_t < 0.5$  T, plasma current  $I_p < 8$  kA, discharge duration  $\tau_p < 25$  ms, Hydrogen or Helium as a working gas. It is equipped with a basic set of diagnostics i) a coil around the transformer core for the loop voltage ( $U_l$ ) measurement; ii) a Rogowski coil around the vessel for the plasma current measurement  $I_p$ ; iii) a small coil for the toroidal magnetic field  $B_t$  measurement; and iv) a photodiode measuring the visible radiation intensity.

Advanced diagnostics include a fast camera for imaging of a poloidal slice of the plasma, interferometer for electron density  $n_e$  measurement, a set of 20 aligned AXUV detectors (bolometers) for measurements of the radiated power profile, scintillators for hard X-ray radiation measurement, various set of coils for monitoring magnetohydrodynamic activity in the plasma, and arrays of various electric probes.

All measurements are stored in a database. A pulse summary with the main plasma parameters is displayed on the experiment web page. The data can be also retrieved as files for further analysis. For an overview of this experimental setup see [Grover et al., 2016].

The educational mission of this tokamak is fulfilled in four modes: i) Bachelor projects and Diploma thesis, ii) Hands-on experiments, iii) Excursions, and iv) Remote operation. The last one is typically relevant for various fusion relevant demonstrations of tokamak operation and training courses, such as winter or summer plasma physics and technology events, during which it is extremely refreshing to include such real online experimentation in the programme of the event.

## References

- [Grover et al., 2016] Grover, O., Kocman, J., Odstrcil, M., Odstrcil, T., Matusu, M., Stockel, J., Svoboda, V., Vondrasek, G., and Zara, J. (2016). Remote operation of the GOLEM tokamak for fusion education. *Fusion Engineering and Design*, 112:1038–1044.
- [Svoboda et al., 2010] Svoboda, V., r, J. M., Pokol, G., Réfy, D., ockel, J. S., and sek, G. V. (2010). Former Tokamak CASTOR becomes remotely controllable GOLEM at the Czech Technical University in Prague . In *Europhysics Conference Abstracts. 37th EPS Conference on Plasma Physics (online: <http://ocs.ciemat.es/EPS2010PAP/pdf/P2.111.pdf>)*, volume 34A.