

EDUCATION AND TRAINING OF STUDENTS

The GOLEM tokamak is a university-type of an experimental facility, which is exploited for practical training of students. Students are acquainted with basics of tokamak operation, data processing and evaluation of some plasma parameters. Repetition rate of plasma discharges is quite high (one shot in ~ 2-3 minutes), therefore scans of discharge parameters can be easily performed in a couple of teaching hours. The unique feature of the GOLEM tokamak is its capability to be handled remotely via standard Internet. Several remote courses have been organized annually:

- French fusion master course together with Erasmus Mundus at CEA Cadarache, France
- GOMTRAIC – GOLEM Remote training course, education and training course oriented on basic understanding of experimental tokamak physics and control. It is meant for undergraduate and postgraduate students who want to get experience with operating of a fusion device. Prague, Czech Republic
- SUMTRAIC – Summer training course, Prague, Czech Republic
- EMTRAIC – Erasmus Mundus Training Course, Prague, Czech Republic
- SCIWEEK – Science week for high school students from Czech Republic. 4 groups of students making more than 100 on-site discharges performing spectroscopic studies, plasma position studies using fast camera, vertical plasma position studies using Mirnov coils and HXR studies at the tokamak GOLEM.
- tokamak Golem have also contributed to the Prague Museum Night and Nights of Scientists – excursions for more than 100 visitors during the night.

Tokamak GOLEM have contributed to the programme of numerous lectures, demonstrations, workshops, plasma physics courses, etc. such as for: Ghent University 2009, TU Eindhoven 2011,2015-2018; Bochum University 2013; Garching 2013; Lemvig High School 2014; TU Kobehaven, TU Denmark 2015,2016,2018; University of Belgrade 2015-2017; BUTE Budapest 2010,2012-2014,2015-2018; Instituto Tecnologico Costa Rica 2010, University of Padova 2014,2016,2017; Workshops in Kiten 2014,2016,2018; Observatorium Valasske Mezirici 2014, Islamabad 2014, Australian University in Armidale 2017; ASEAN School on Plasma and Nuclear Fusion in Thailand 2017, 2018; Global Tokamak Experiment 2010, Plasma physics course in Trieste, Italy, etc.

Experiments related to CRP project triggered bachelor and master thesis at the CTU:
Jakub Veverka – Bachelor thesis on plasma breakdown on the tokamak GOLEM
Jindrich Kocman – Master thesis plasma position control on the tokamak GOLEM

6. CONCLUSION

Tokamak GOLEM contributed to a numerous educational events and activities with the help of its unique capability to be operated remotely. More than 2000 discharges were performed remotely across the borders of the Czech Republic as a part of a remote laboratory practice or a tokamak performance presentation for foreign students in various plasma schools, workshops, lectures and training courses.