The tokamak GOLEM IBA report #11

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on behalf of the tokamak GOLEM team

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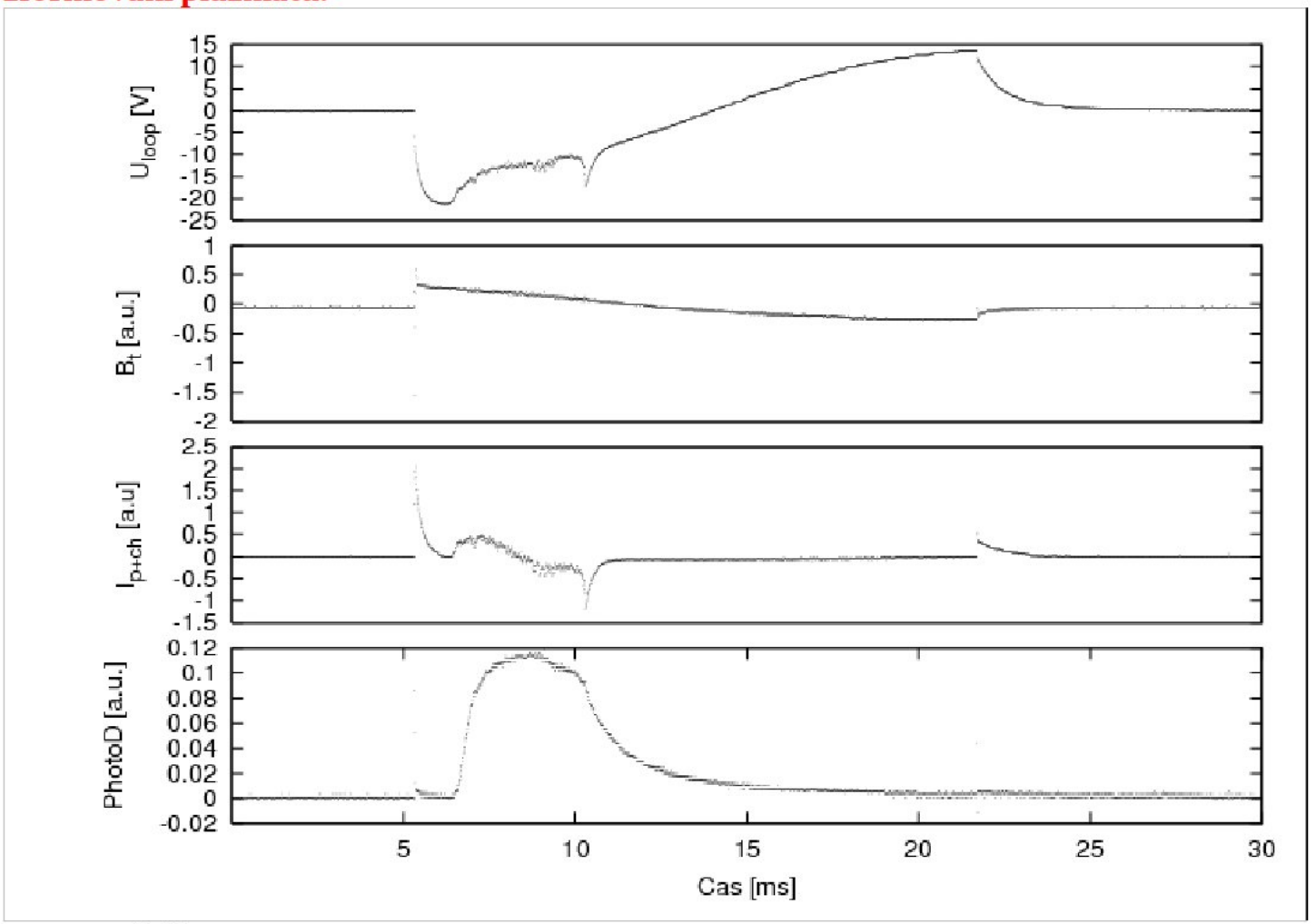
07/09: First plasma in the tokamak GOLEM

Časové průběhy signálů zřetelně ukazují, že došlo k průrazu neutrálního plynu a k zformování plazmatu.

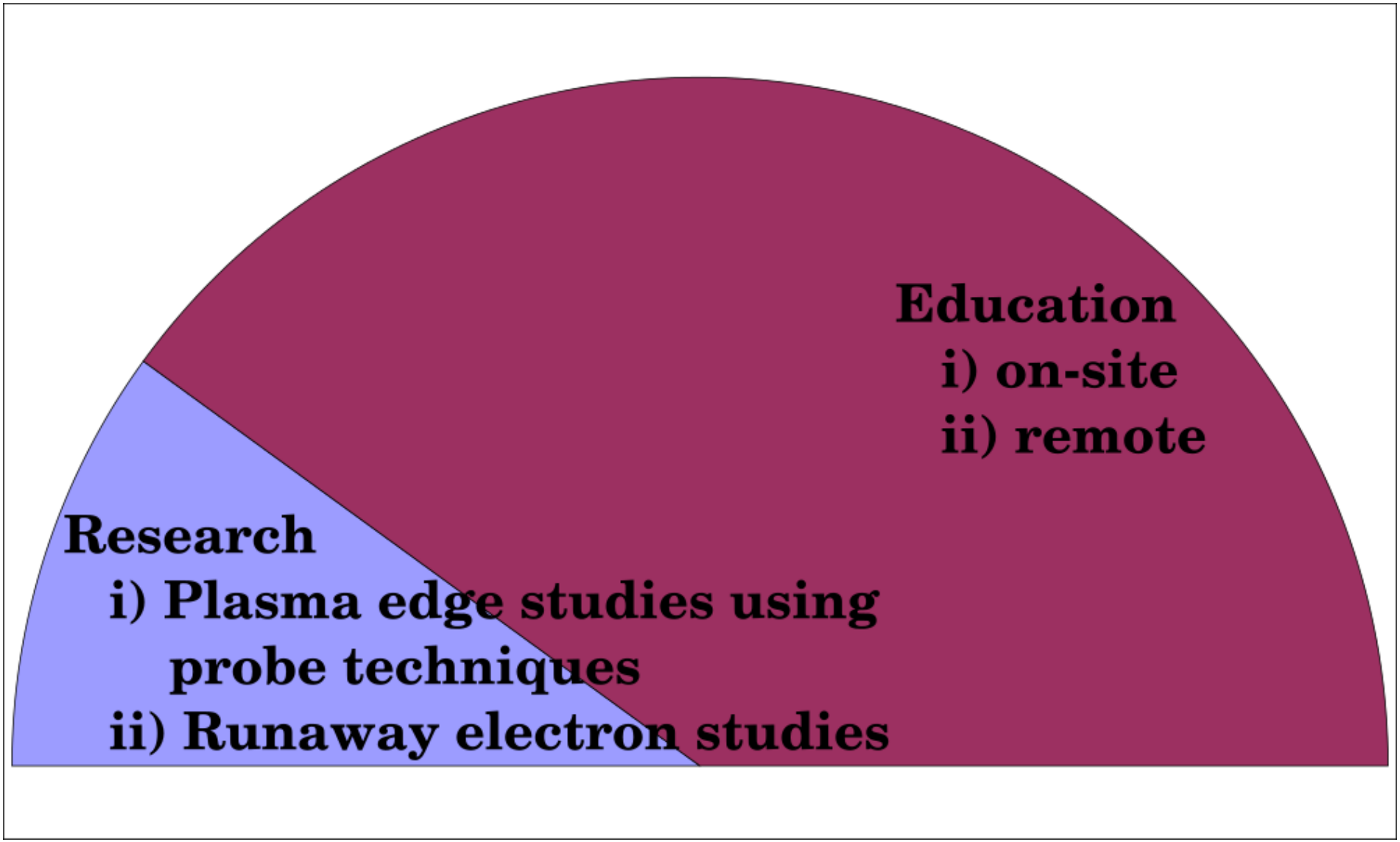


O tom svědčí:

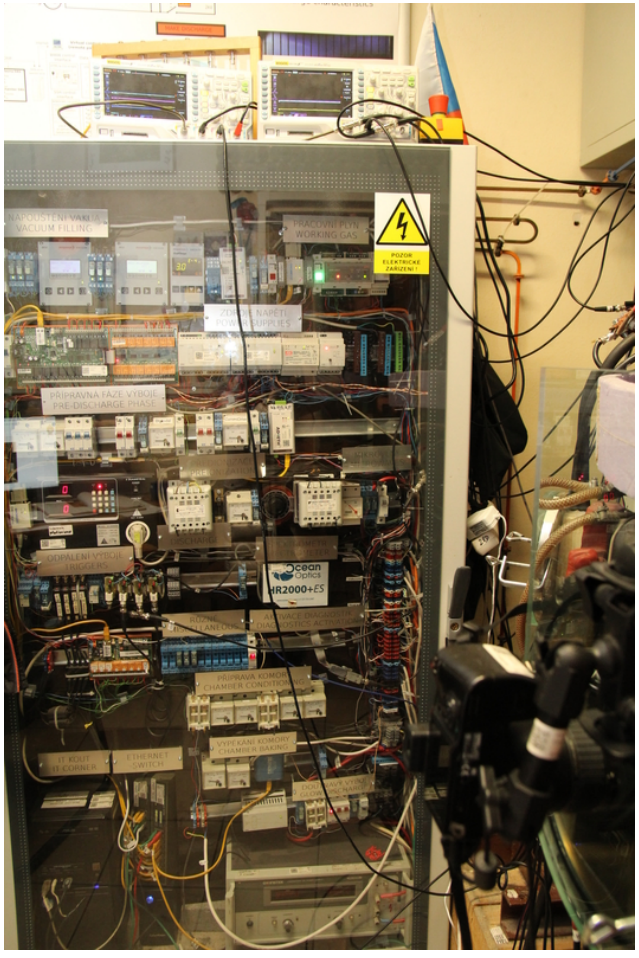
1. Rychlý pokles napětí na závit v čase t = 6-7 ms a jeho malé fluktuace.které lze vidět až

10 years in the Fusion Education service

The GOLEM tokamak mission



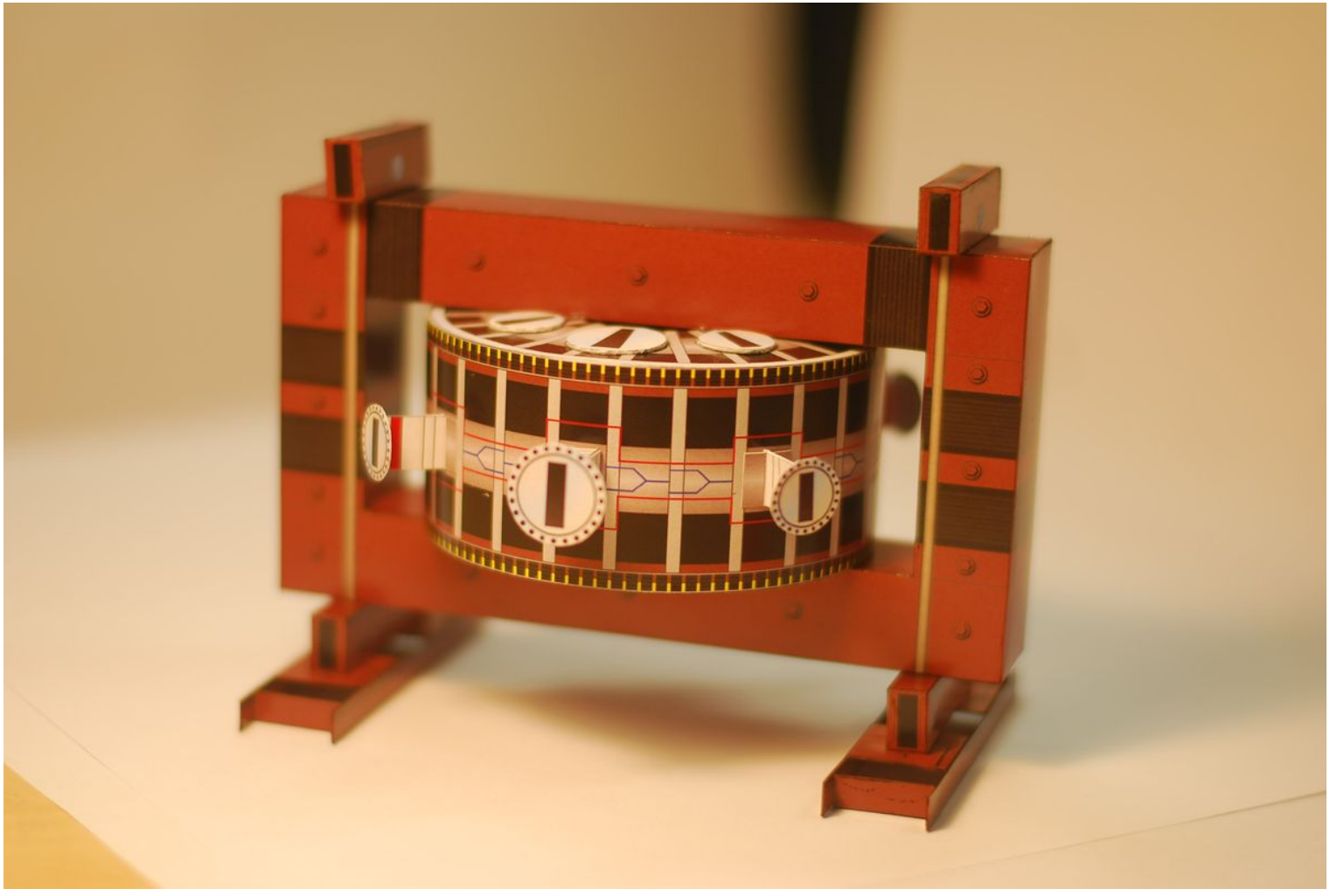
GOLEM FaceLift



Highlights

- Invited lecture "Spoutání energie hvězd v pozemských podmínkách" for the Colors of Ostrava legendar music festival
- Seminar "The GOLEM tokamak: 10 years of the Fusion education service" at the Asdex Upgrade
- Lecture "Oživování novodobého GOLEMa" for the Physical Thursdays at the CTU Electrofaculty

Paper model ABC



Current projects

- The Students Grant Agency of the Czech Technical University in Prague, grant No. SGS19/180/OHK4/3T/14, Research of the Magnetic Field Confinement in Tokamak.
- The Czech Science Foundation GA18-02482S "Radiation processes generated by runway electrons in tokamaks".
- Operational programs RDE CZ.02.1.01/0.0/0.0/16_019/0000778: Centre of Advanced Applied Sciences 2018-2023.
- International Mobility of Researchers CTU CZ.02.2.69/0.0/0.0/16_027/0008465 Pravesh Dhyani.
- IAEA research contract F13019, entitled 'Network of Small and Medium Size Magnetic Confinement Fusion Devices for Fusion Research'.

Current Bachelor projects and Diploma thesis

- BP: Adéla Kubincová: Advanced plasma vertical position reconstruction on the GOLEM tokamak.
- DP: Petr Mácha: Edge plasma studies in tokamaks by the mean of advanced electric probes.
- BP: Vojtěch Fišer: Real-time control of technological processes at the GOLEM tokamak.
- Partial RP: Marek Tunkl: Application of segmented semiconductor detectors for runaway electron diagnostics.
- RP: Filip Papoušek: Impact of swept edge plasma potential biasing on turbulence in tokamaks.

Education Reports

O. Grover, V. Svoboda, and J. Stockel. "Online experimentation at the GOLEM tokamak". In: *2019 5th Experiment International Conference (exp.at'19)*. 2019, pp. 220–225. DOI: 10.1109/EXPAT.2019.8876482. URL: https://ieeexplore.ieee.org/document/8876482.

Runaway studies Reports

Svoboda V. Istokskaia V. Mlynář J. Čeřovský J. Ficker O. Linhart V. Dhyani P. "Design and development of probe for the measurements of runaway electrons inside the golem tokamak plasma edge". In: vol. 2019-July. Europhysics conference abstracts. 2019, P1.1016. ISBN: 979-10-96389-11-7. URL: http://ocs.ciemat.es/EPS2019PAP/pdf/P1.1016.pdf.

P. Dhyani et al. "Study of Runaway Electrons in GOLEM Tokamak". In: *Journal of Instrumentation* 14.09 (2019), pp. C09029–C09029. DOI: 10.1088/1748-0221/14/09/c09029. URL: https://doi.org/10.1088%2F1748-0221%2F14%2F09%2Fc09029.

V. Linhart et al. "First Measurement of X-rays Generated by Runaway Electrons in Tokamaks Using a TimePix3 Device with 1 mm thick Silicon Sensor". In: *2018 IEEE Nuclear Science Symposium and Medical Imaging Conference Proceedings (NSS/MIC)* 2018, pp. 1–9. DOI:

Plasma edge studies Reports

Vojtech Svoboda et al. “Operational Domain in Hydrogen Plasmas on the GOLEM Tokamak”. In: *Journal of Fusion Energy* (2019). ISSN: 1572-9591. DOI: https://doi.org/10.1007/s10894-019-00215-7.

Mácha P. Istokskkaia V. Kropáčková D. Papoušek F. Adámek J. Čeřovský J. Ficker O. Grover O. Jiráková K. Stöckel J. Svoboda V. Kulkov S. “Tokamak GOLEM for fusion education - chapter 10”. In: vol. 2019-July. Europhysics conference abstracts. 2019, P1.1068. ISBN: 979-10-96389-11-7. URL: http://ocs.ciemat.es/EPS2019PAP/pdf/P1.1068.pdf.