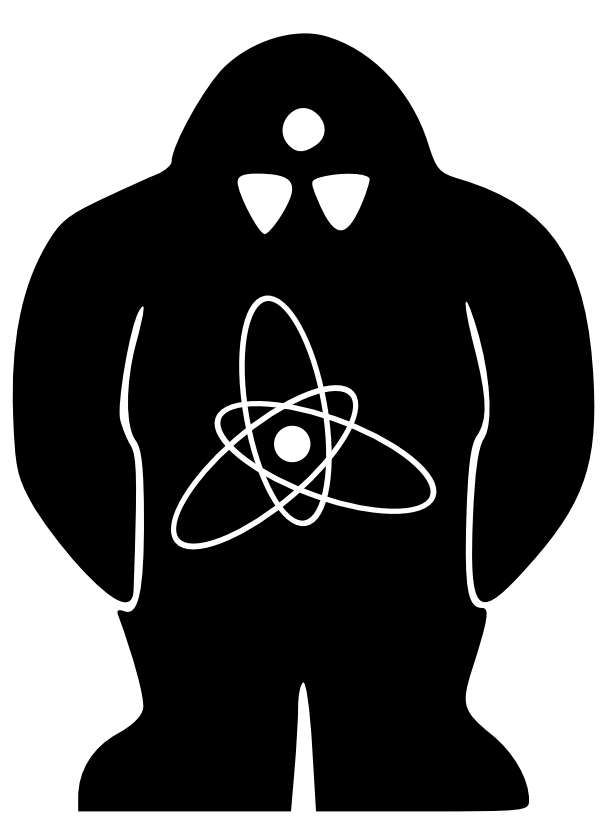


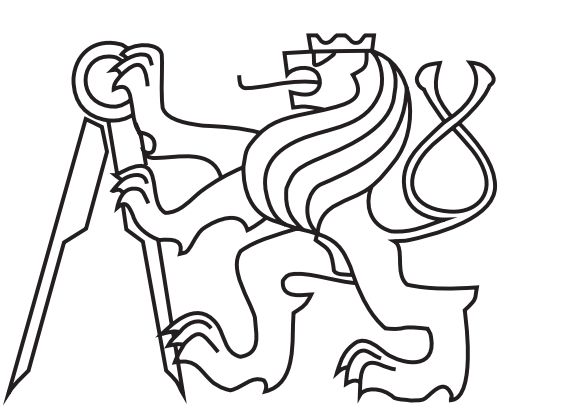


ADVANCED REMOTE OPERATION OF THE GOLEM TOKAMAK

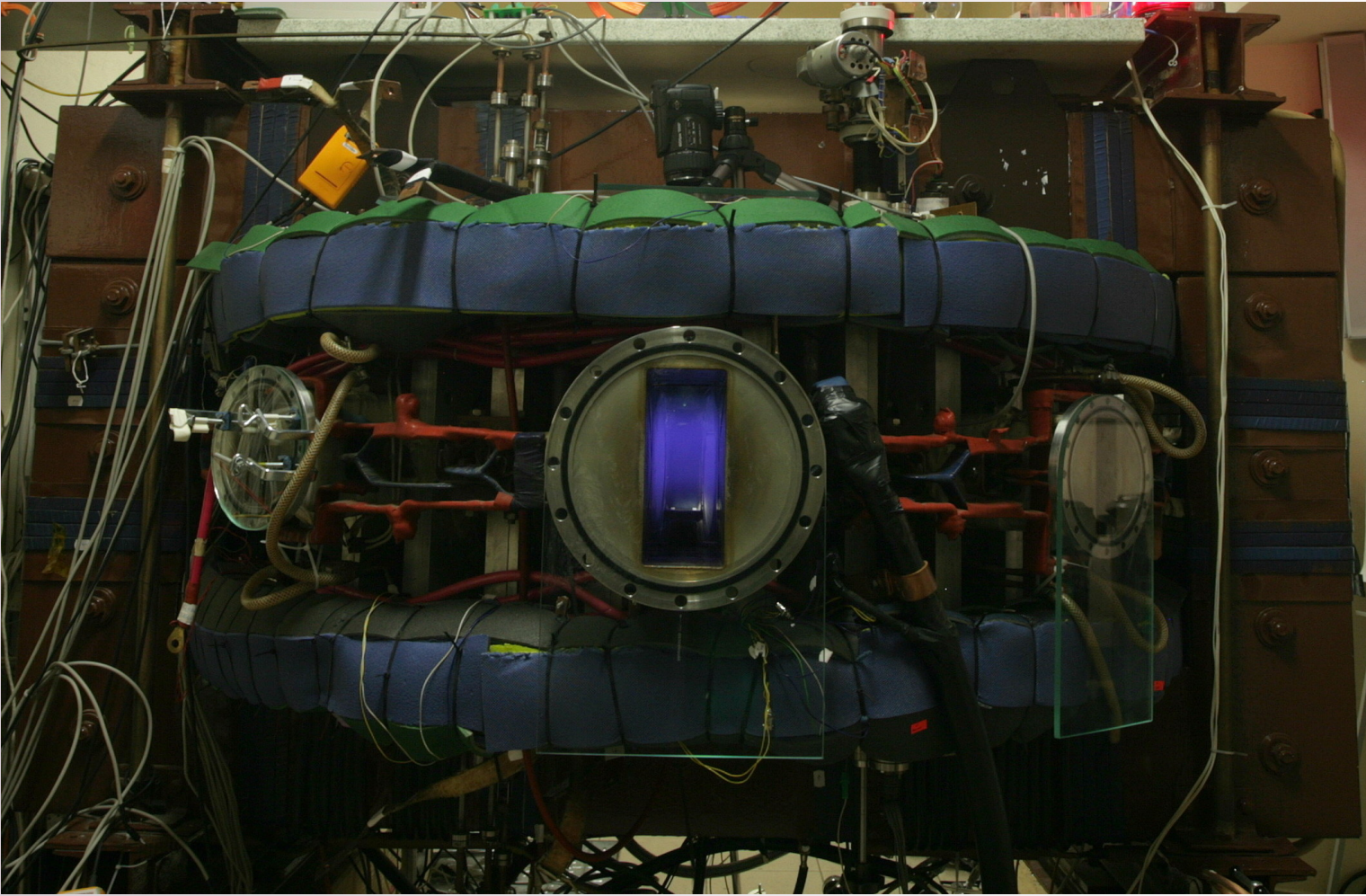
O. Grover¹, J. Kocman¹, J. Krbec^{1,2}, V. Svoboda¹, J. Stöckel^{1,2}

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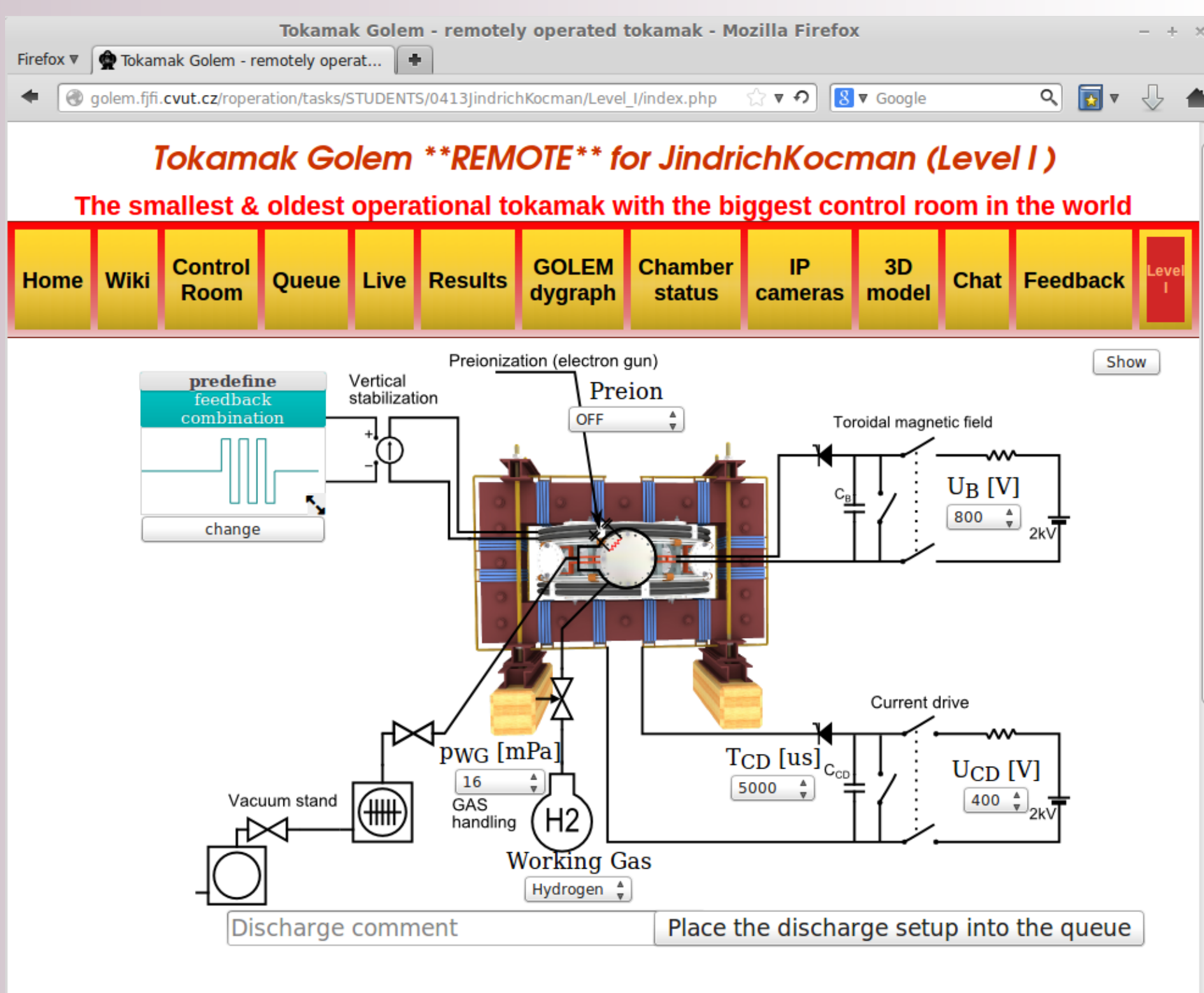


The GOLEM Tokamak



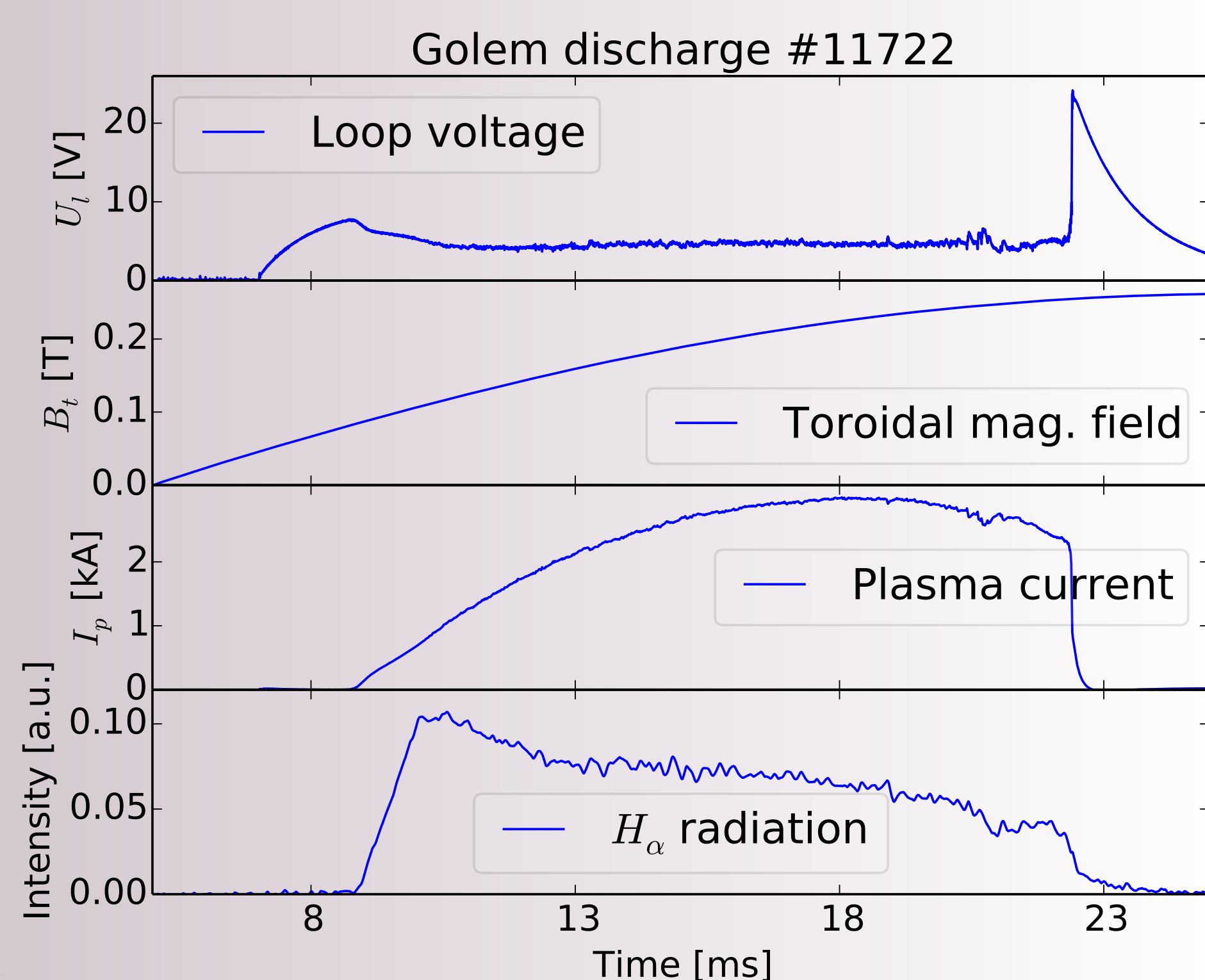
- Parameters: Major radius $R = 0.4$ m, plasma radius $a = 85$ mm, toroidal magnetic field $B_t < 0.5$ T, plasma current $I_p < 8$ kA, pulse length < 15 ms
- An educational device for domestic as well as for foreign students via remote participation/handling

Remote Control Room



The GOLEM tokamak remote control room layout.

A well executed discharge



Contact us

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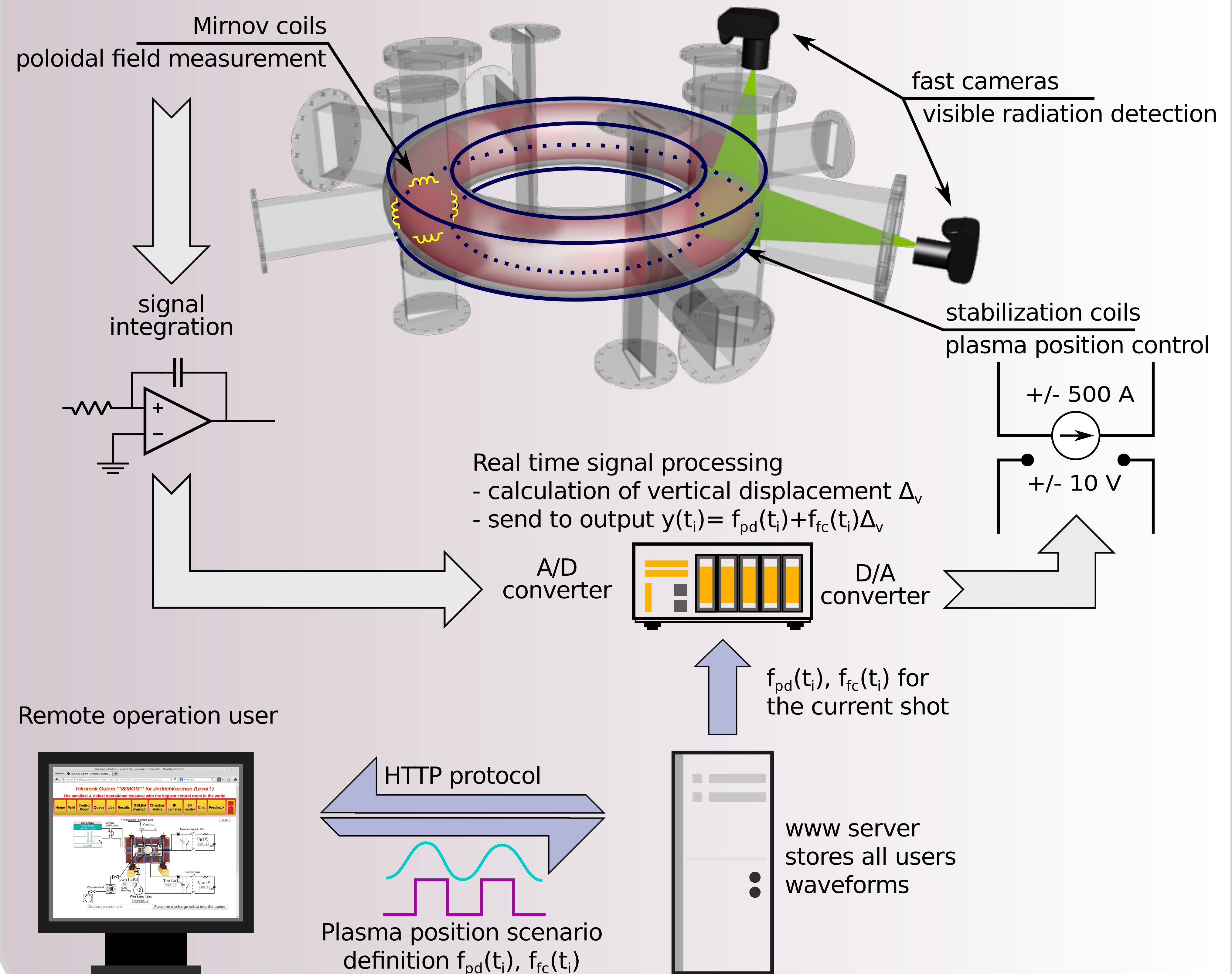


Acknowledgment

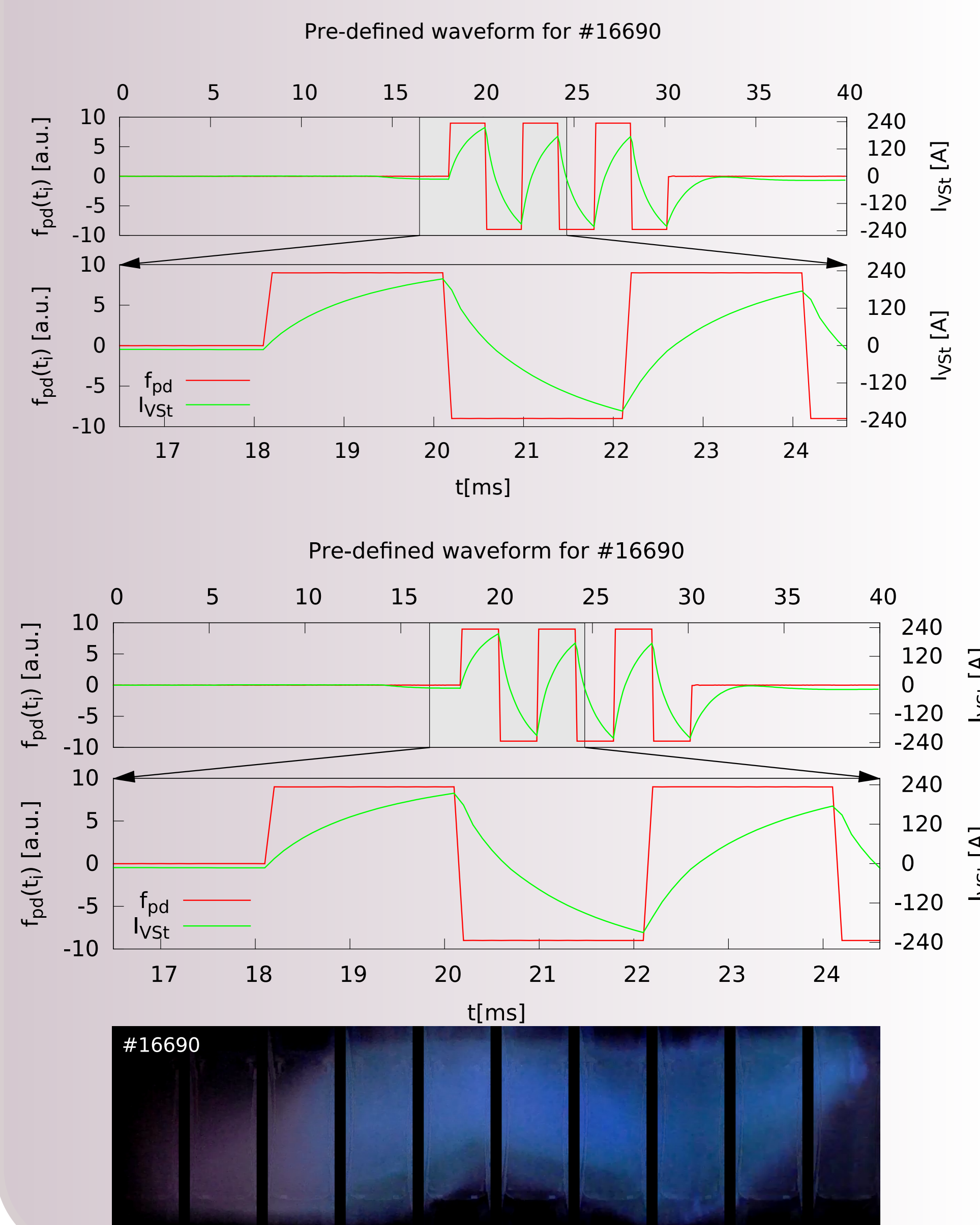
The project was supported by the FUSENET, CTU RVO68407700, IAEA technical contract CRP F1.30.14 on Utilization of the Network of Small Magnetic Confinement Fusion Devices for Mainstream Fusion Research

This work was supported by the Grant Agency of the Czech Technical University in Prague, grant No. SGS13/145/OHK4/2T/14.

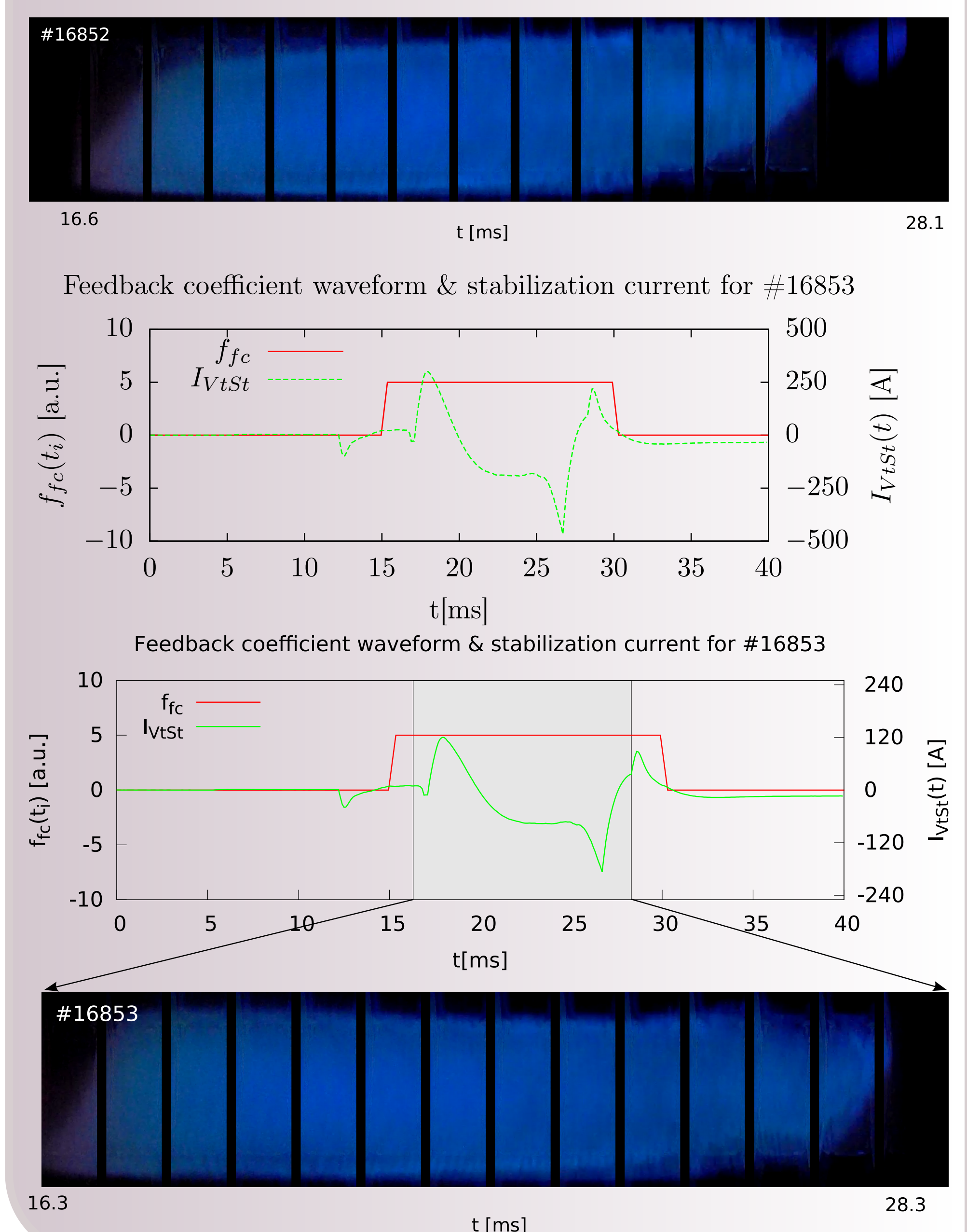
Control of Vertical Plasma Position



Pre-defined vertical mode test



Feedback vertical mode test



Future Outlook

- horizontal position control
- increase of the stabilization current up to 1kA
- non-linear dependance $f_{fc}(\Delta_v)$
- possible new inputs: bolometers, electric probes [2] or other means of Δ_v detection

References

- [1] T. Odstrcil, M. Odstrcil, O. Grover, V. Svoboda, I. uran, J. Mlynar, Low cost alternative of high speed visible light camera for tokamak experiments, Review of Scientific Instruments 83 (2012).
- [2] I. S. Carvalho, H. Fernandes, P. Duarte, C. Silva, H. F. C. Figueiredo, T. Hekkert, ISTTOK real-time control assisted by electric probes, in: Conference Proceedings. 21 st IAEA Technical meeting on research using small fusion devices, volume
- [3] V. Svoboda, B. Huang, J. Mlynar, G. Pokol, J. Stockel, G. Vondrasek, Multi-mode Remote Participation on the GOLEM Tokamak, Fusion Engineering and Design 86 (2011) 1310-1314.

Summary

- Remote plasma position control implemented
- Various modes (pre-defined, feedback or combination) offer study opportunities
- relative plasma-life prolongation $> 20\%$