

Golem #9 2016 - from #20411 to #22926

Mariánská 2017

Vojtěch Svoboda

FUSION IN EUROPE

NEWS & VIEWS ON THE PROGRESS OF FUSION RESEARCH



AN UNREAL REALITY PUSHES FUSION SCIENCE

JET - THE MOST SUCCESSFUL PERFORMANCE IN YEARS

HOW TO TAME PLASMA TURBULENCE

CHANGING

Because it must face up to various challenges in terms of maintenance, designing, engineering, training, studying and entertaining, fusion has been at the forefront when it comes to exploring the features of Virtual Reality. The Culham Centre for Fusion Energy was one of the first laboratories which used the, at the time, new computer simulations for its Remote Handling Facility. According to Tom Mainelli, a future market analyst and expert for Devices & AR/VR from the International Data Corporation, it won't be long before other areas will jump onto the bandwagon into another reality: "VR will fundamentally change the way many of us work."



COOPERATING

The potential applications afforded by VR as a future standard tool in complex science and industry are increasing. Various scientific fields are collaborating in the search for feasible solutions, such as the European Spallation Source, a large scientific project based in Lund (Sweden). Their engineers are currently working with RACE experts to develop VR simulations for operations in the Active Cells Facility.



STUDYING

You don't need to be a colleague in England or France to virtually enter a tokamak. The Faculty of Nuclear Sciences and Physical Engineering at the Czech Technical University in Prague allows everyone to remotely operate the facility's small tokamak Golem. Students from over 20 countries have already conducted breakdown studies, generated runaway electrons or undertook magnetohydrodynamic activity observations.



ENTERTAINING

"We should definitely make good use of high tech to present a high tech research like fusion", says Tamás Szabócsics from the Wigner Research Center for Physics. Two years before the mobile game "Pokemon go" was launched, the software engineer from EUROfusion's Hungarian Research Unit created a fusion app. Visitors at Wigner's booth at the 23rd Saiget Festival were able to scan a book with their mobile phones and have additional videos and information displayed on their devices. "People were amazed by the flashing plasmas and impressive tokamak interiors", he continues. The engineer enjoyed coding the programme. "Now that I have the experience, I will be able to enhance the app by adding 3D models", he says. Unfortunately, the VR fusion app is not yet available.



PLAYING

Want to give it a go? Try out EUROfusion's "Operation Tokamak" game. It lets you operate fusion plasmas using strong magnetic fields. But be careful, the fusion fuel can become too hot and destroy the machine. The game is available for Android and iOS and can be downloaded here:



www.eurofusion.org/operation-tokamak/

Controlling the fuel plasma of EUROfusion's ITERATION



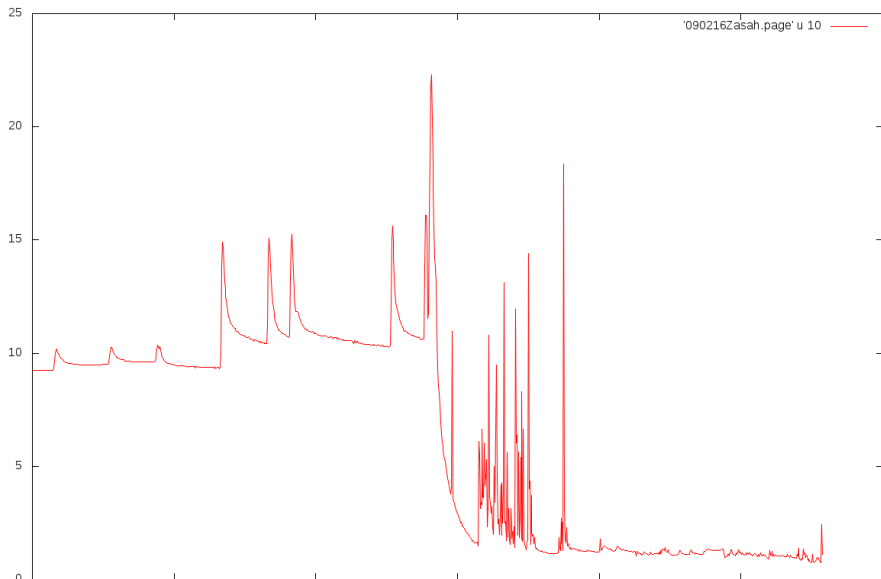
Outline

1 Vacuum

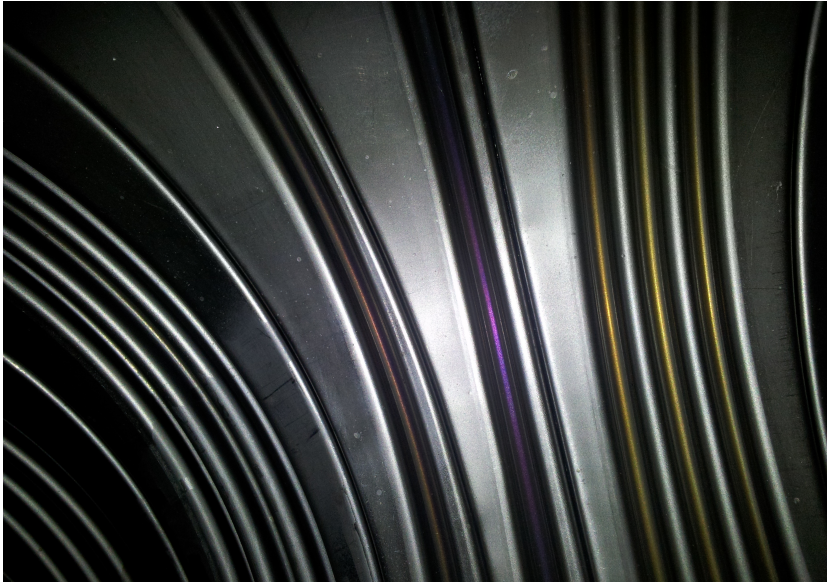
2 SOFT consequences

3 News

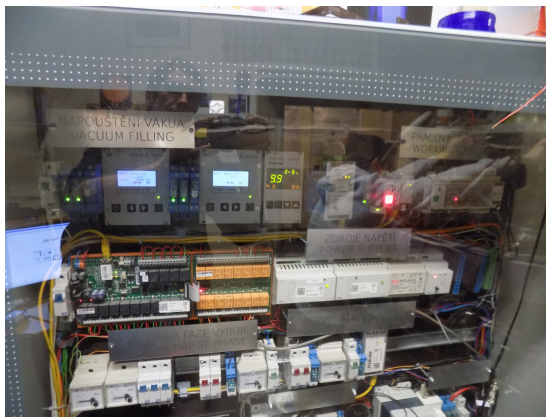
Leakage 090216 hit



Suspicious Place



12/16: $p < 0.1$ mPa



Dobrá zpráva pro Vojtu Munzara (zápočet)

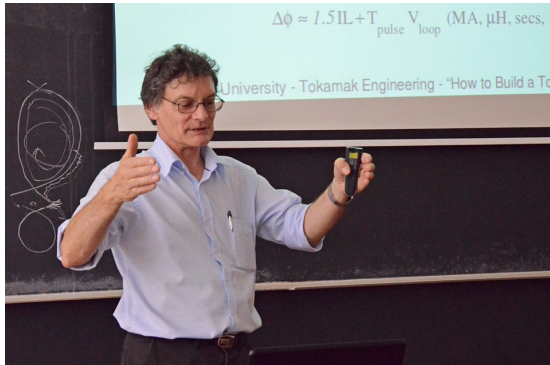
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9/16: Thomas Noel Todd lecture for FTTF students

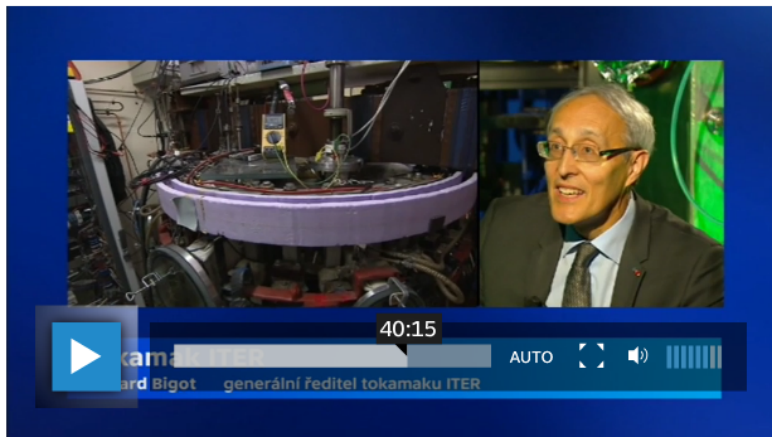


Lecture

How to build a tokamak.

To be continued ..

ITER DG, Mr. Bernard Bigot at the GOLEM (Shot #22185)



Quotation from Czech Television Hydepark

I am very pleased with the GOLEM ...

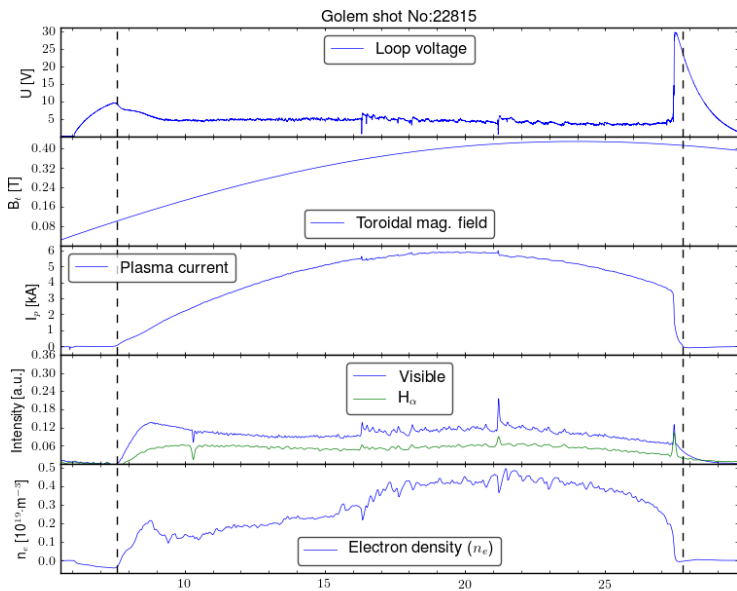
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12/16: $\tau_p > 20$ ms (OF & JČ)



Forecast 2016

- The Night of Scientists III.
- FUMTRAIC IV, SCIWTRAIC@GOLEM VI, HUNTRAIC V, SUMTRAIC@GOLEM VIII, EMTRAIC@GOLEM III.
- GOMTRAIC ?? (3 days)
- Bachelor thesis ?
- Diploma thesis IV cont.
- papers in FUSENGDES, AJP .. ?
- AP: MartinM, MatusC, OndraG, KatkaJ, PeterS, MiroslavS, RichardD, AdamS, BorL, JakV, VojtM → Marianska 2017.

44th EPS @ Belfast, Severní Irsko (23.-26.6)

KDO CHCE JET? Za peníze z SGS

Nabídka pro nejproduktivnějšího.

Fee: Abstrakt (02), Poster (06), Sborník (06)