

EUROnu - Annual meeting
2- 4 June 2010, IPHC Strasbourg



Beta Beams,
EUROnu WP4

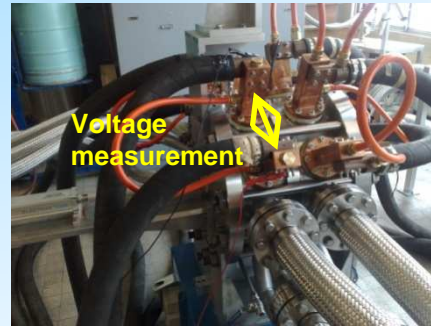


Organization and planning of the next **SEISM** B field measurements
(**S**ixty GHz **E**CR **I**on **S**ource using **M**egawatt Magnets)

T. Lamy, LPSC

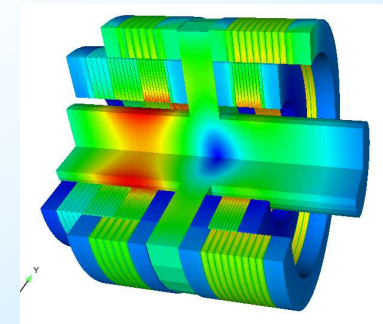


Organization and planning of the next **SEISM** B field measurements (I) (**S**ixty GHz **E**CR **I**on **S**ource using **M**egawatt Magnets)



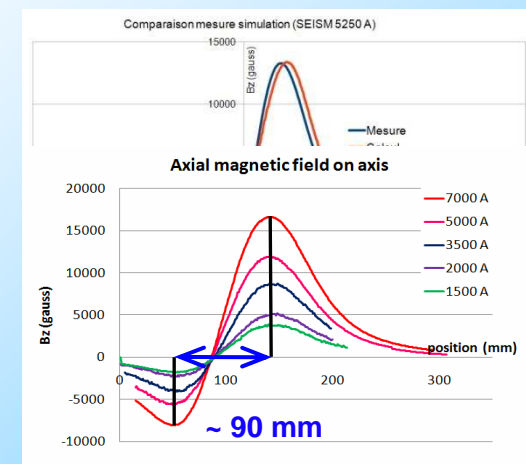
Goals

- Experimentally validate the simulated magnetic field map for the CUSP structure
- Verify the existence of a 1T Electron Cyclotron Resonance closed surface at the center of the structure (13000 A) for 28 GHz operation



Reached

- Security given to the experimental site
- Measurements have been performed up to 7000 A
- Measurements - simulation comparison :
 - Injection side 'perfect' agreement
 - Slight difference at the extraction side (to check)
 - Distance between maxima (90 mm) in agreement with the design
- First experimental campaign finished



Organization and planning of the next **SEISM** B field measurements (II)

Observed

- Measurement automation not sufficient
- Excessive cavitation for the range 7000 - 13000 A (too high cooling flux)
- At 7000 A voltage between current leads 20 V: 280 kW
Water inlet 6°C, outlet only 8.4°C, total water cooling flux 12 l/s per side (6 bars)

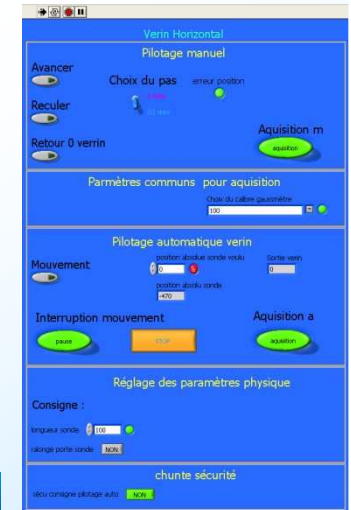
Corrections

- Data acquisition system totally rebuilt: fully automatized measurements (except the hall probes changes...!)
- Increase the pressure at the outlet by the mean of the insertion of compressed stainless steel discs (Poral® filters) at the water outlet
- Delivery 15th June



Very next future

- Available measurements periods last week of June
- Extension of the magnet time access demand performed
- If possible 13000 A measurements before end of July



Organization and planning of the next **SEISM** B field measurements (III)

Future and politics...

- The goal is still to produce ion beams...
- ISTC contract (IAP - LPSC - LNCMI - Istituto di fisica del plasma EURATOM Milano) for gyrotron and experiments
The funds from LPSC-CNRS have been sent to ISTC (225 k€)
- An International Scientific Collaboration Program between IAP and LNCMI 'Magnet development for a continuous gyrotron at 1 THz' is under evaluation (I am very optimistic), LPSC is a collaborator for this program to explore the use of THz radiation as dense plasmas diagnostics (60 GHz)
- New joint LPSC-LNCMI project (anti-crisis great loan for research) 'Dense plasmas, Intense Ion beams, TeraHertz radiation facility' about 3M€
- XIXth International Workshop on ECR Ion Sources
80 to 100 participants 23-26 August in Grenoble
(Link to the web page from LPSC home page)

