# PWIE SP F monitoring meeting
# Oct 28, 2026
# Deliverables D001 and D002 LPP-ERM/KMS

**Kristel Crombé**

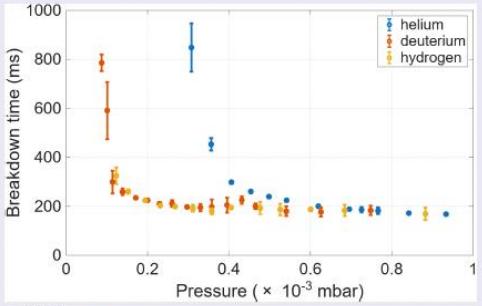
On behalf of the TOMAS team

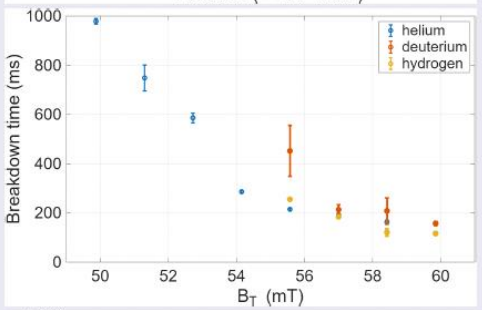
This work has been carried out within the framework of the EUROfusion Consortium, funded by the European Union via the Euratom Research and Training Programme (Grant Agreement No 101052200 — EUROfusion). Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Commission. Neither the European Union nor the European Commission can be held responsible for them.

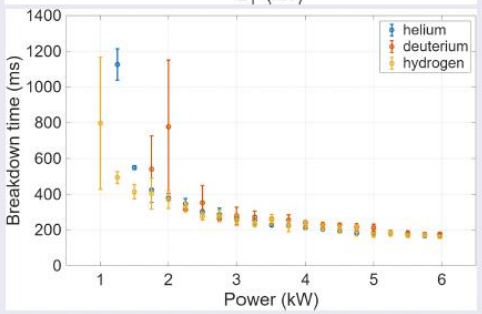
# Exploration of optimal breakdown conditions and magnetic configurations for Electron Cyclotron Wall Conditioning scenarios for JT-60SA and ITER (LPP-ERM/KMS) D001

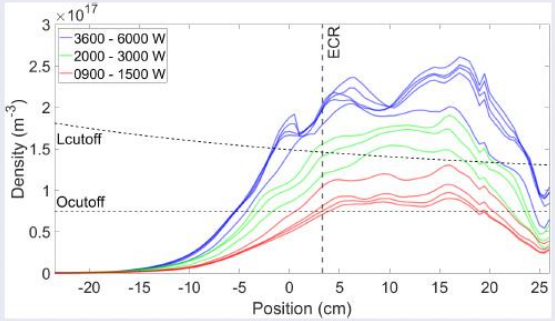
**Studies performed on the TOMAS device**

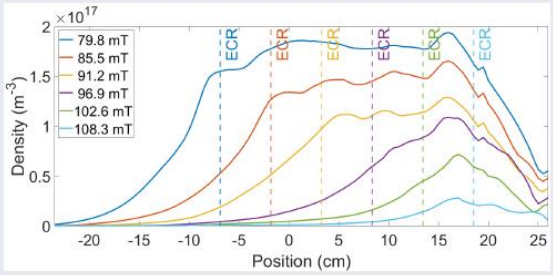
1. Compare fundamental and second harmonic
2. Explore the influence of several parameters on the breakdown time
3. Explore the influence of several parameters on the density build-up
4. Increase the plasma-wall interactions

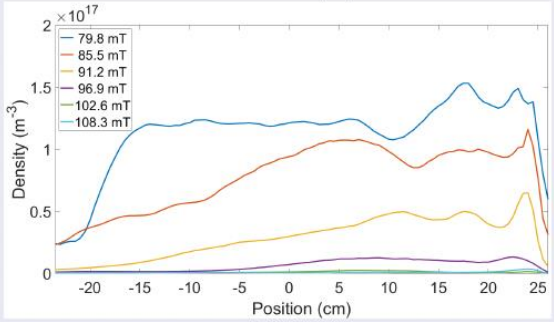



**Deliverable accomplished.**

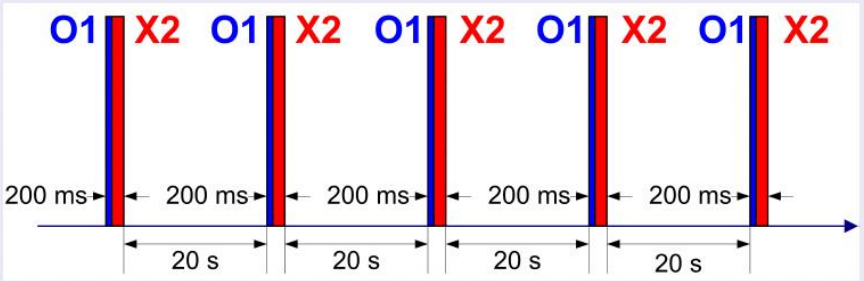
**Results presented by Johan Buermans as invited talk at AAPPS-DPP, Oct 11-16, 2026, Busan, South Korea**

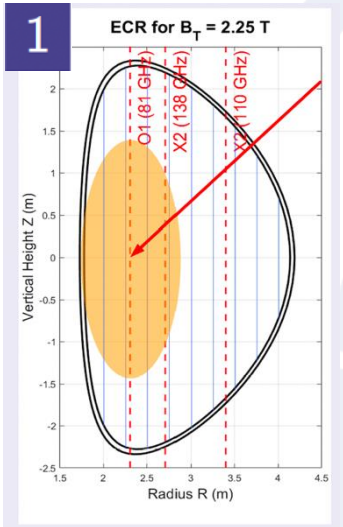
# Exploration of optimal breakdown conditions and magnetic configurations for Electron Cyclotron Wall Conditioning scenarios for JT-60SA and ITER (LPP-ERM/KMS) D001

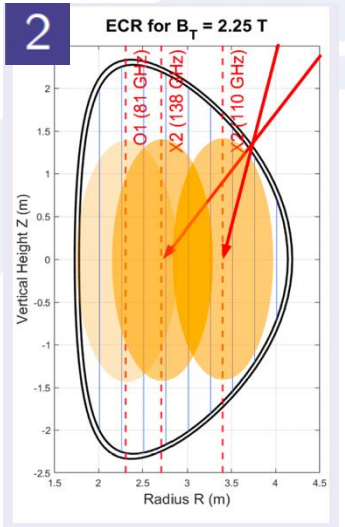
**Proposed scenario for JT-60SA**

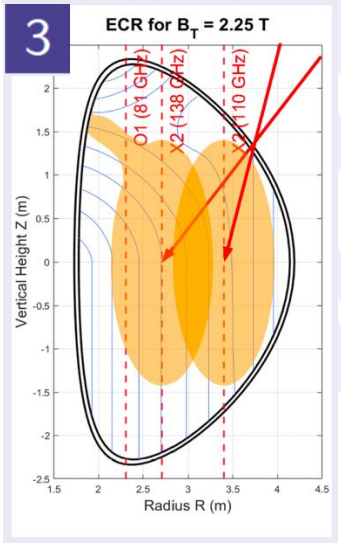
1. Plasma breakdown with O1-wave near HFS with specific magnetic field
2. Plasma density build-up with X2-wave with specific magnetic field
3. Plasma-wall interaction at a specific location of the HFS wall
4. Sufficient waiting time to pump out the desorbed particles (20s)

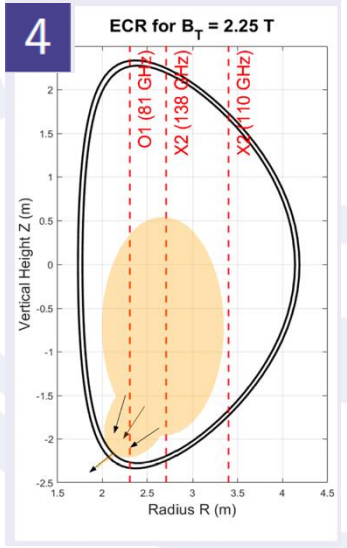
Repeat 1 → 4 : EC pulse train sweeping the HFS from top to bottom




**Article in progress:**

"Exploration of optimal breakdown conditions and magnetic configurations for ECWC scenarios for JT-60SA"

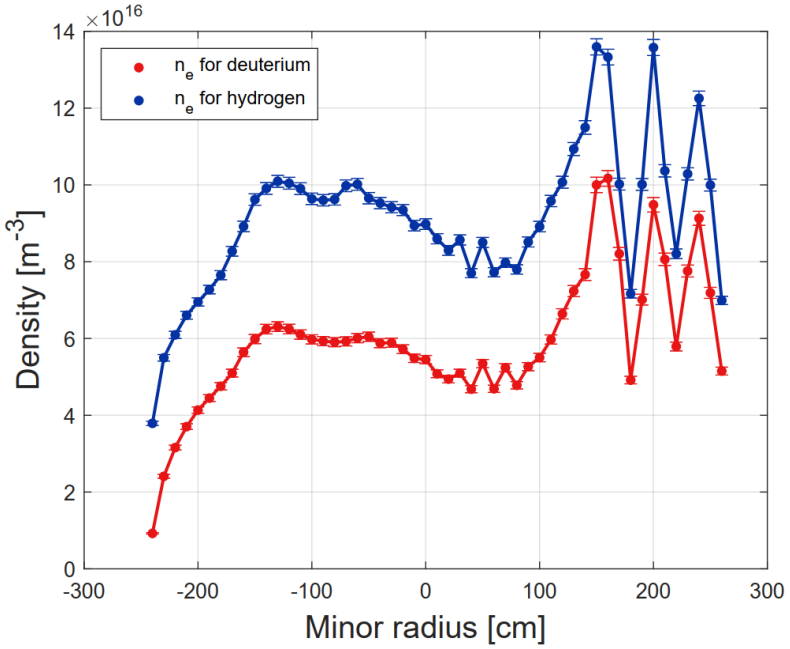
# Characterization and analysis of H and D mixed wall conditioning plasmas in TOMAS utilizing the improved data analysis methods for TOMAS plasma diagnostics (LPP-ERM/KMS) D002

**Done: pure H and D plasma characterization**

**Results presented by Daniel Lopez in PhD thesis (Sept 24, 2026 UGent)**

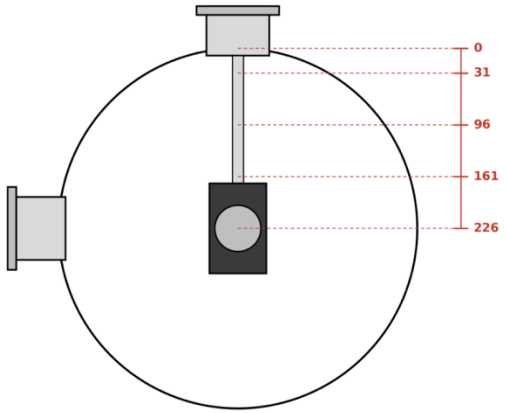
## Radially movable triple Langmuir probes

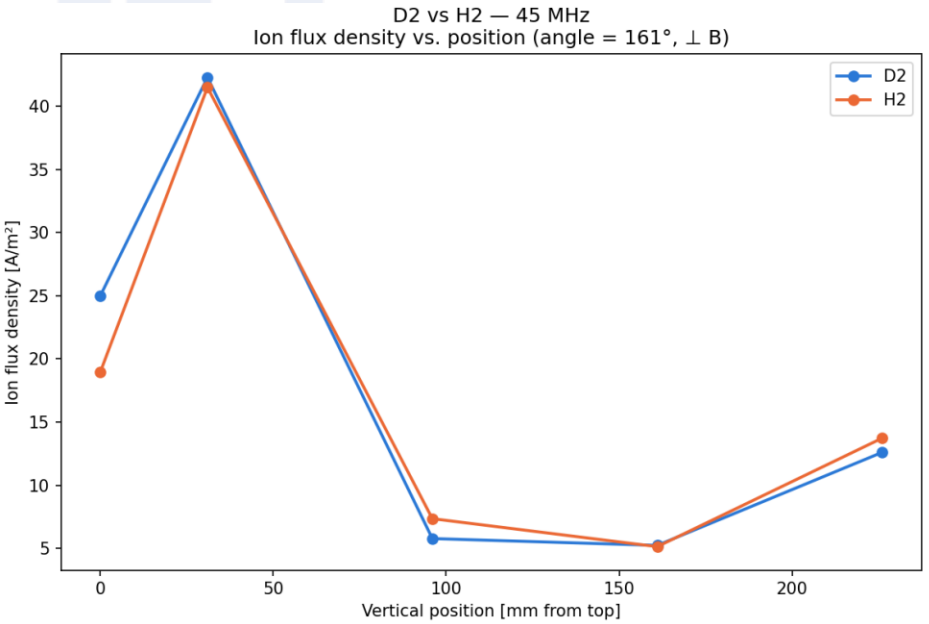
- For the same conditions, the densities in Hydrogen are higher than in Deuterium.




## Retarding Field Energy Analyzer (RFEA)

- Measures the local ion energy distribution function at the detector.
- Similar ion fluxes for Hydrogen and Deuterium plasmas under the same conditions.

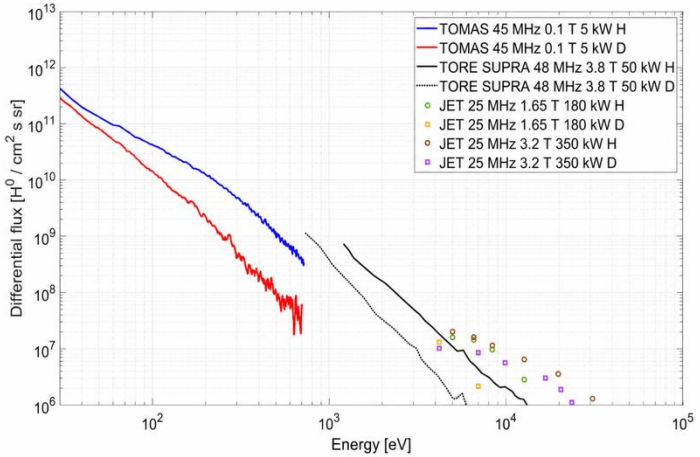


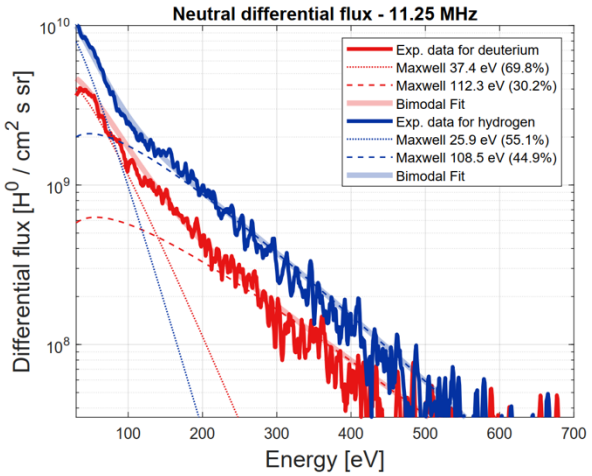



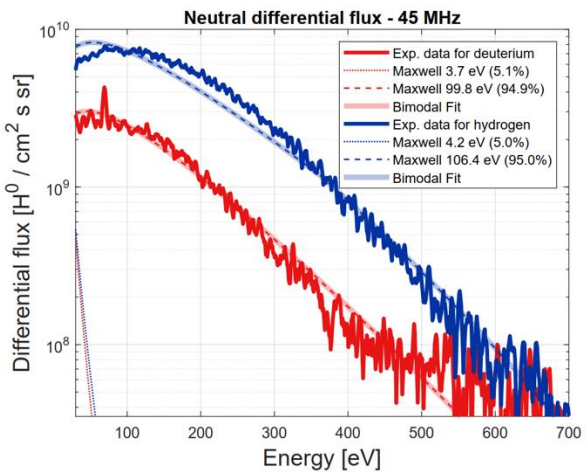
# Characterization and analysis of H and D mixed wall conditioning plasmas in TOMAS utilizing the improved data analysis methods for TOMAS plasma diagnostics (LPP-ERM/KMS) D002

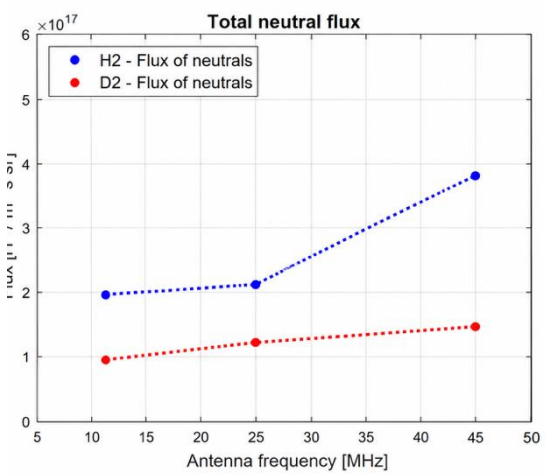
Neutral Particle Analyzer (NPA)

- Measurement of neutral particle energies and fluxes.
- Fluxes are higher for Hydrogen than for Deuterium plasmas, consistent with observations in other machines.




**Left to do: H and D mixed plasmas. Planned for December 2026.**