EUROfusion

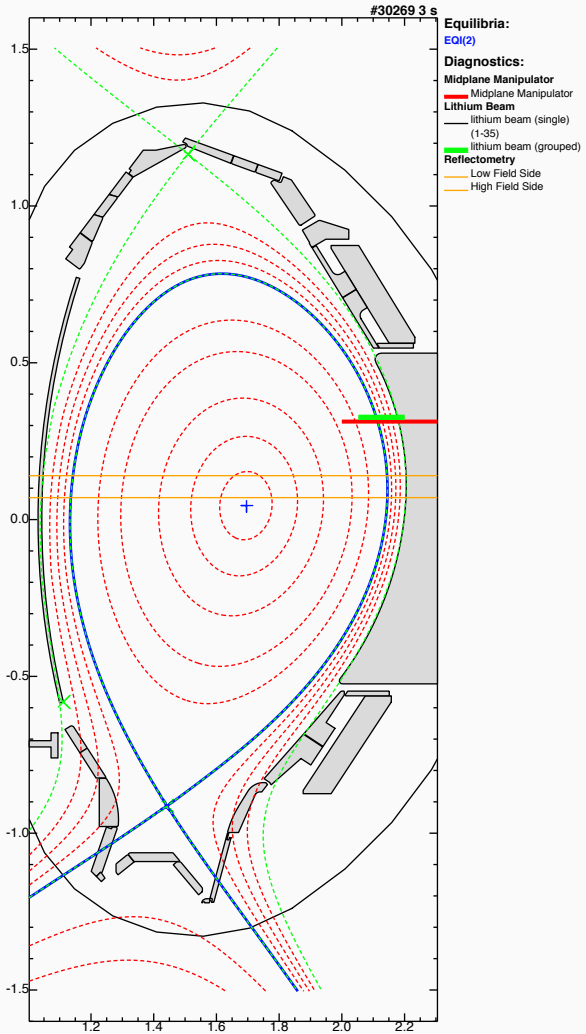
Topic 21: AUG experiment

Topic 21 Scientific Team

24 April 2017

This work has been carried out within the framework of the EUROfusion Consortium and has received funding from the Euratom research and training programme 2014-2018 under grant agreement No 633053. The views and opinions expressed herein do not necessarily reflect those of the European Commission.

L-Mode



1 **EOC** Shape, 0.8MA, B_ϕ = -2.5 T, 0.5MW NBI heating, fueling as reference 30269, heating starting together with fueling

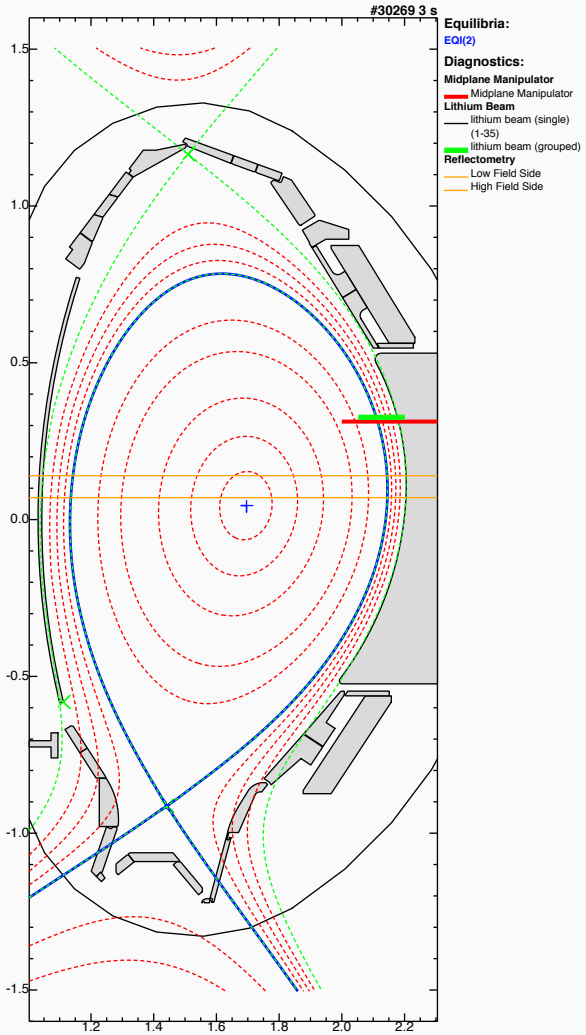
2 Same density ramp and heating with I_p = 0.61 MA, B_ϕ = -1.9T (reduced current with the same q_{95})

3 Same density ramp and heating with I_p = 0.99 MA, B_ϕ = -3.1T (increased current with the same q_{95})

4 Same density ramp and heating B_ϕ = -2.5T and I_p = 0.99 MA

5 Same density ramp and heating B_ϕ = -2.5T and I_p = 0.61 MA

H-Mode



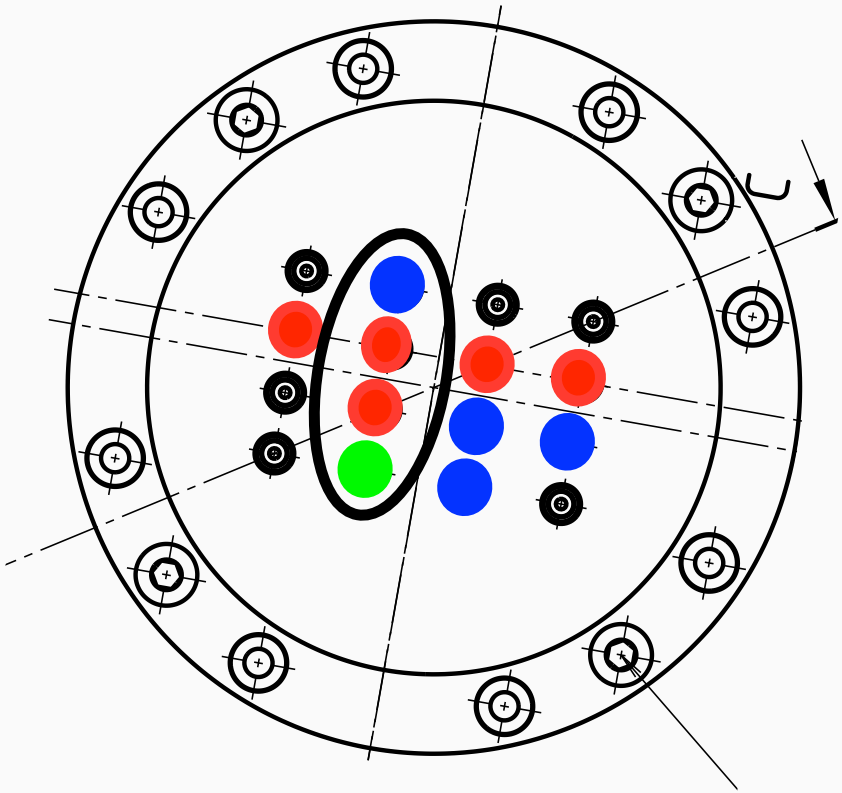
6 **EOC** Shape, repeat # 33478 with P_{NBI} = 4MW, D_2 puffing starting at 4s up to 35×10^{21} @ 6s. 1 Plunge of probe in safe position

7 Repeat 6 adding N in feed-forward. Keep similar value as reference (since we are already increasing the fueling)

Required diagnostic and analysis

- ☒ Midplane Manipulator
- ☒ Li-Beam profiles (inter-ELMs one in the H-Mode shots) and fluctuations
- ☒ RFA #2
- ☒ Divertor probes. Evaluation inter-shot of profiles and rollover density. Divertor collisionality
- ☒ Neutral profiles
- ☐ Infrared for probe head monitoring
- ☒ Reflectometer including the multi-channel one for the operation at 1.9 T
- ☐ Bolometer/AXUV in the divertor region. We need the monitoring of radiation front movement. Can we get inverted and tomography inter shot?
- ☐ Gauges and neutral measurement
- ☒ SXR
- ☒ FILD

HFF probe head



- ✓ Ion saturation current
- ✓ Floating potential
- ✓ Swept probe for T_e and n_e
- ✓ Intershot analysis for blob-size, autocorrelation