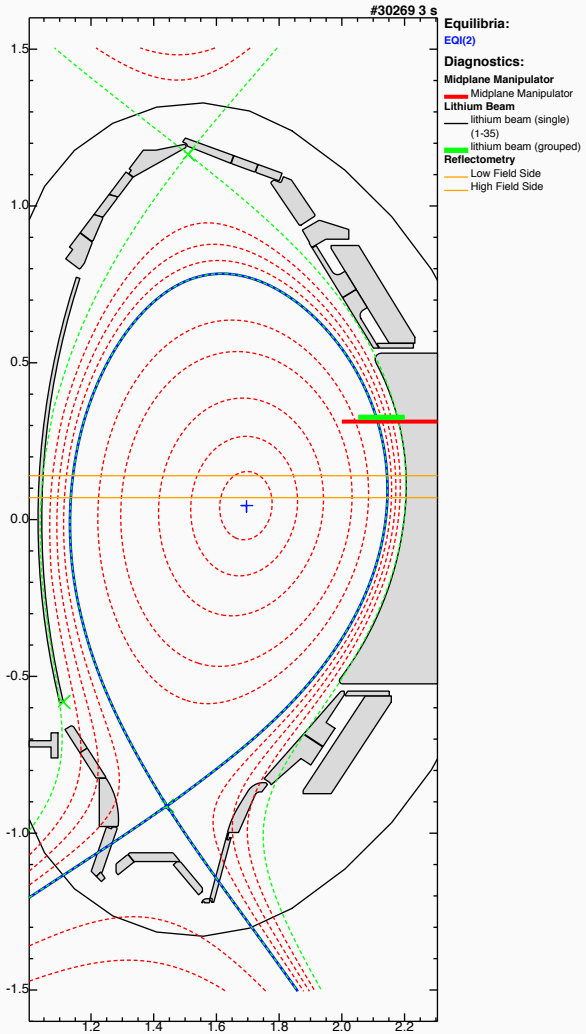
Topic 21: AUG experiment Week 17 Summary

Topic 21 Scientific Team

28 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

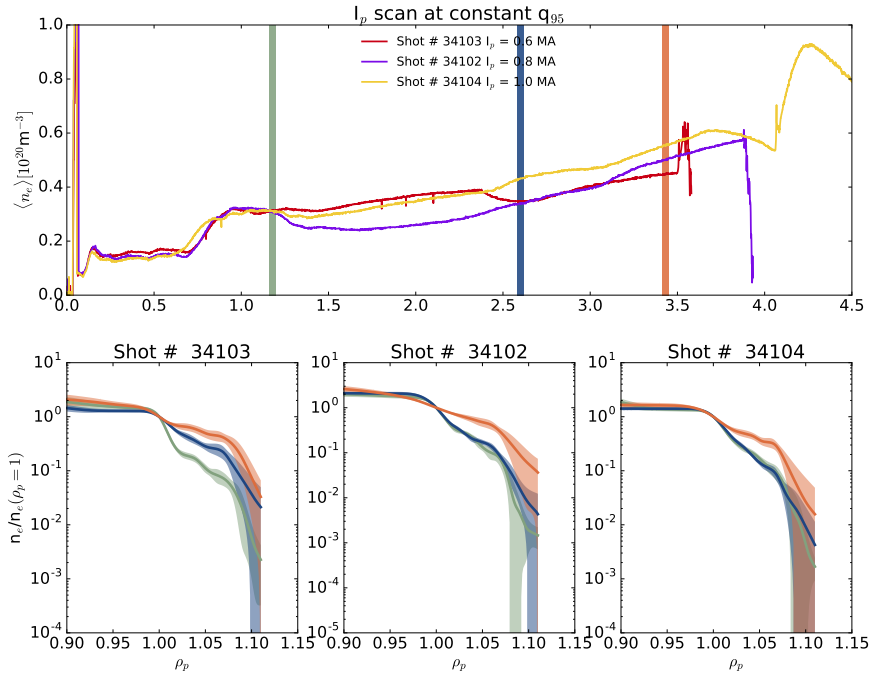
2 Same density ramp and heating with I_p = 0.61 MA, B_ϕ = -1.9T (reduced current with the same q_{95})

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

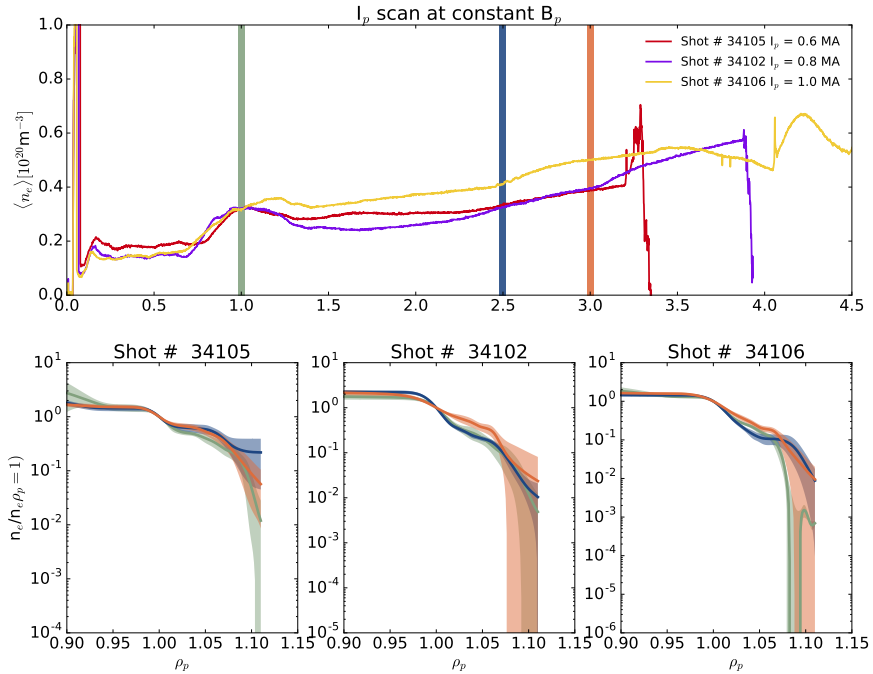
5 Same density ramp and heating B_ϕ = -2.5T and I_p = 0.61 MA

Current scan at constant q_95



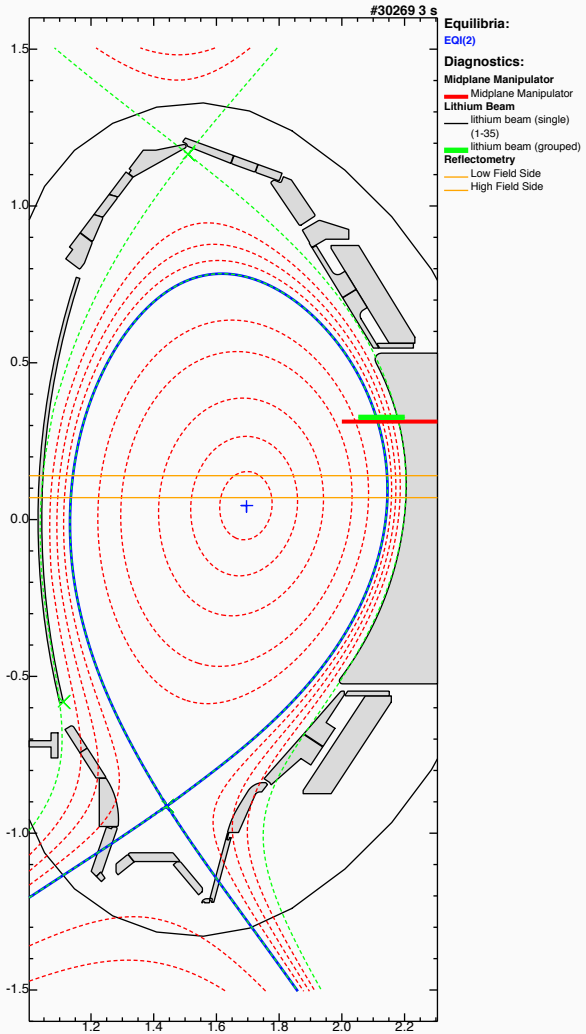
- ✓ Succesfull plasma current scan at constant q_{95} (# 34102, 34103, 34104).
- ✓ Actually at higher current $\bar{n}_e$ too high?
- ✓ It is true the flattening occurs earlier in density at lower current?

Current scan at constant q_95



- ✓ At constant B_t the flattening is less robust? Compare for example higher current at same density

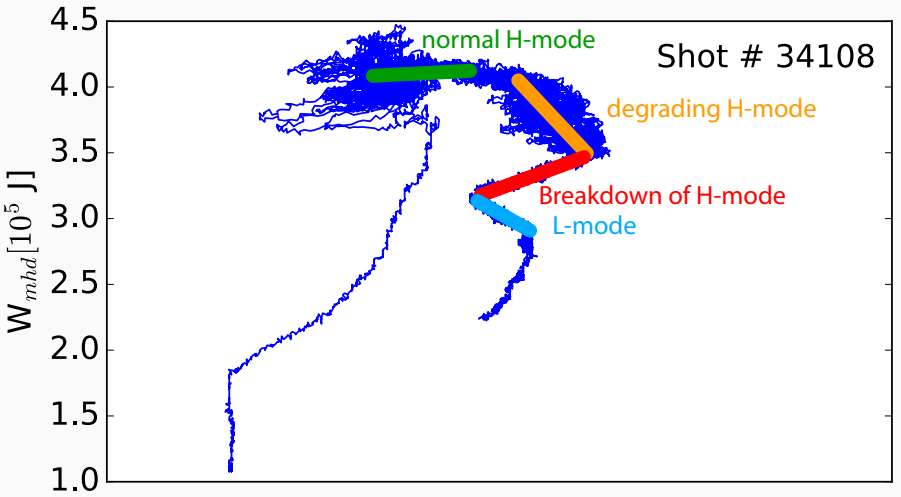
H-Mode

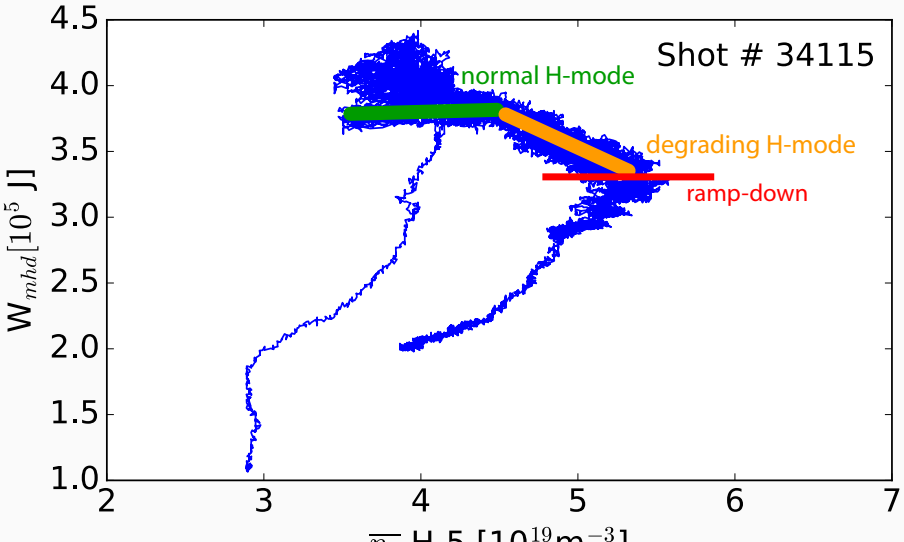


6 **EOC** Shape, repeat # 33478 with P_{NBI} = 4MW, D_2 puffing starting at 4s up to 35×10^{21} @ 6s. 1 Plunge of probe in safe position

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

H-Mode





- ✓ 3 Shots obtained (1 not in our budget?) # 34107 (3.4MW), 34108 (5.4MW), 34115(5.4MW)
- ✓ The last two shots encountered at the end a phase of degraded H-Mode.
- ✓ Reducing the N seeding in # 34115 allows to skip part of the phases. Can we try to reduce further? Keep in mind we need to readjust all considering the lack of cryopumps

Analysis to be done: brainstorming

- ✓ Blob size, velocity, collisionality scaling (D. Carralero). Proper calculaton of $L_{||}$ (N. Vianello)
- ✓ Limiter probe analysis (S. Costea)
- ✓ Profile andλ_n evolution also in inter-ELM phases Li-Beam (F. Laggner)
- ✓ Reflectometry. Profile evolution and Fluctuations (IST)
- ✓ Fast ions (K. McClements and J. Galdon-Quiroga)
- ✓ Divertor evolution and rollover time (W. Zhang)
- ✓ Radiation (M. Bernert and N.Vianello)
- ✓ Further statistical analysis (structure function, increments PDF scaling) (M.Spolaore)
- ✓ Neutrals: Calibrated D_α from camera and KN1D neutral profile estimate (M. Agostini)
- ✓ Others?