

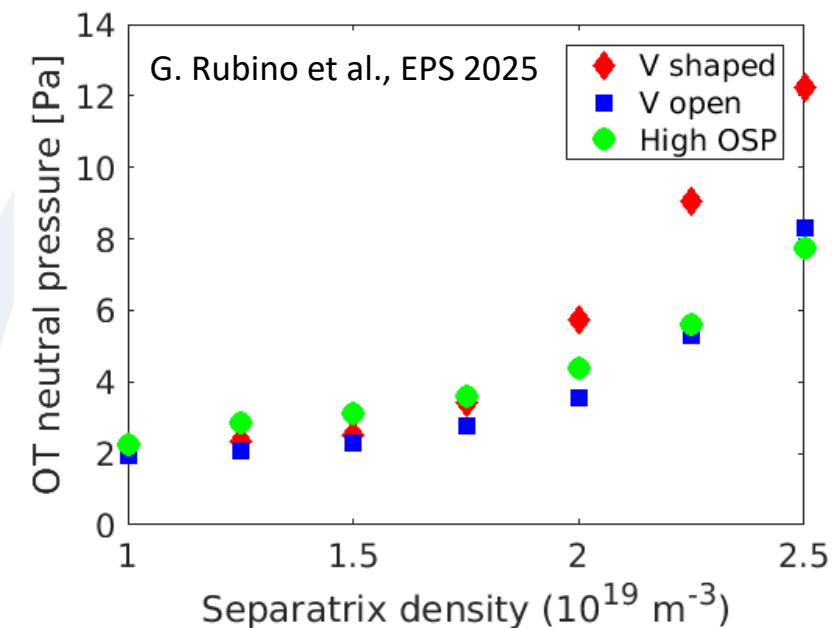


Measurements and validation of neutral compression in the JT-60SA divertor in hydrogen and deuterium plasmas using SOLPS-ITER

- **Proponents and contact person:** M. Groth (mathias.groth@aalto.fi), R. Chandra, A. Vesa (Aalto), W. Dekeyser (KUL), L. Balbinot (ENEA), G. Rubino (CNR) S. Wiesen (DIFFER), T. Nakano (QST), T. Wakatsuki (QST), ...

• Scientific Background & Objectives

- Measure/characterise neutral compression in divertor in (preferably low-upper delta) **LSN deuterium plasmas** under **[DSOL-2] ... neutral compression by the V-shaped corner + in piggy-back, hydrogen plasmas** under **[ORD-2] safe increase of toroidal current up to 5.5MA in L-mode** utilising available early measurements: sub-divertor pressure, LP target plasma cond., vis. and VUV spectroscopy, TVs, bolometry, TS, ...
- Perform core plasma density/sub-divertor neutral pressure and input power variations for range of degree of detachment, w/ X-point/strike point sweeps for target/divertor profiles (e.g., LPs, VUV): low-resource - Ohmic or L-mode → H-mode (BL, unseed. or HB) tbd.
- Raise, lower X-point/strike point height → see Rubino et al., EPS 2025
- Simulate divertor conditions and neutral pressure distribution in density and power scans with SOLPS-ITER, **including photon opacity, BGK, revised AMJUEL data for deuterium, carbon, wide-grid** → compare against measurements AND previous SOLPS-ITER (Rubino et al., EPS 2025), SONIC (Sano, Hoshino et al.) and GOTRESS (Aiba et al., IAEA-FEC 2025) simults.



Number of required discharges: 2 H + 6 D

[ORD-2] In piggy-back, fuelling ramp (and steps) to detachment, in hydrogen L-mode, to be repeated in (any) deuterium low-power phase

[DSOL-2] 1 fuelling ramp + 1 fuelling steps with strike point sweeps, optimised for diag., repeat for 2x higher power and 2 different X-point heights