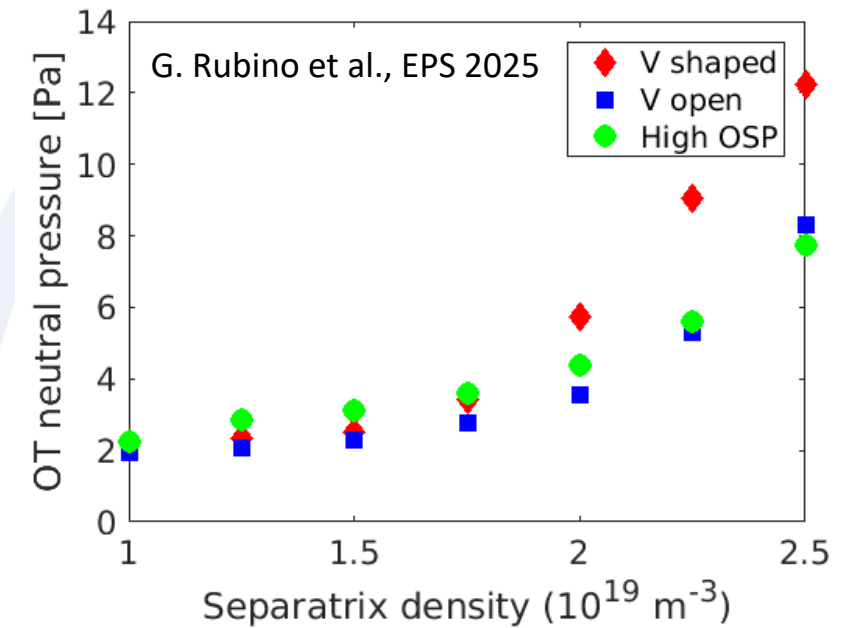




# Measurements and validation of neutral compression in the JT-60SA divertor in hydrogen and deuterium plasmas using SOLPS-ITER

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- **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 conds., 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 diags.**, repeat for 2x higher power and 2 different X-point heights*