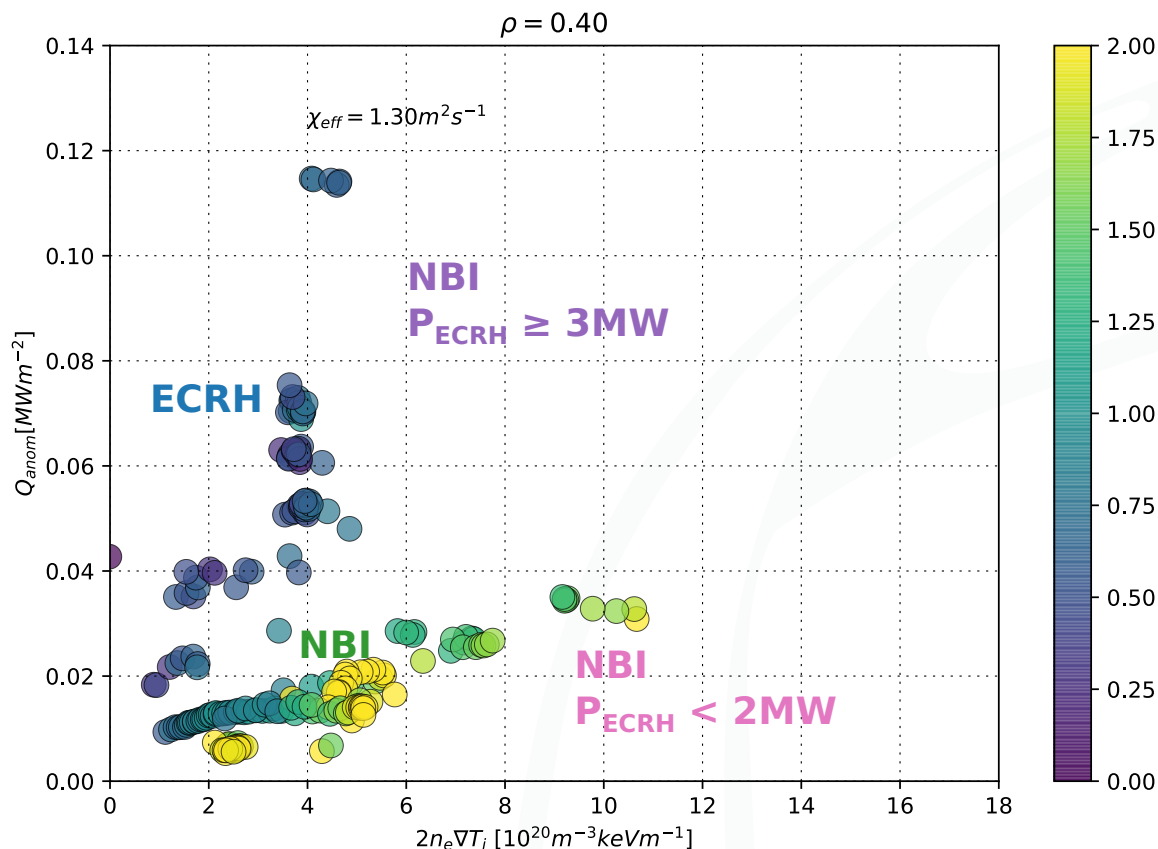


NBI (\pm ECRH) - Anomalous heat diffusivity

- Not possible to separate Q_i , Q_e due to high collisionality and similar heating effect of NBI - $P_e \sim P_i$.
- Look at combined χ_{eff} in gradient region ($\rho \sim 0.4$) reveals two branches:
 - Dominant ECRH: $\chi_{eff} \sim 1 \text{ m}^2\text{s}^{-1}$ as in pure ECRH scenarios [M. Beurskens, Nucl. Fus. 61 116072 (2021)].
 - Dominant NBI: $\chi_{eff} \sim 0.25 \text{ m}^2\text{s}^{-1}$



- Pure NBI has reduced χ_{eff} , but much broader power deposition results in similar ∇T_i . (and T_{i0})
- Mixed NBI with low P_{ECRH} maintain $\chi_{eff} \sim 0.25$ and exploit it for higher ∇T_i .
- All plasmas with $a/L_{ne} > 1.0$ have lower χ_{eff} .
- Without additional ECRH, NBI plasmas can undergo radiation collapse.

[O. Ford Nucl. Fus. 64 086067 (2024)]