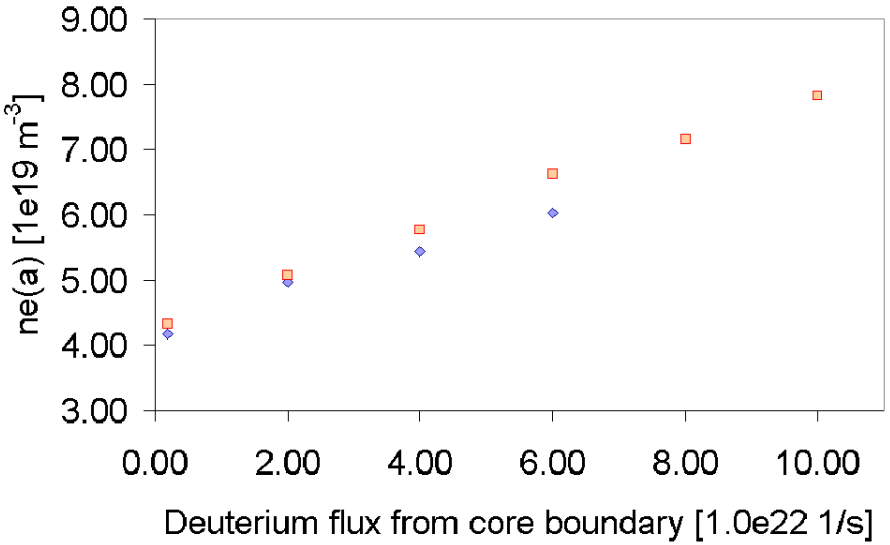
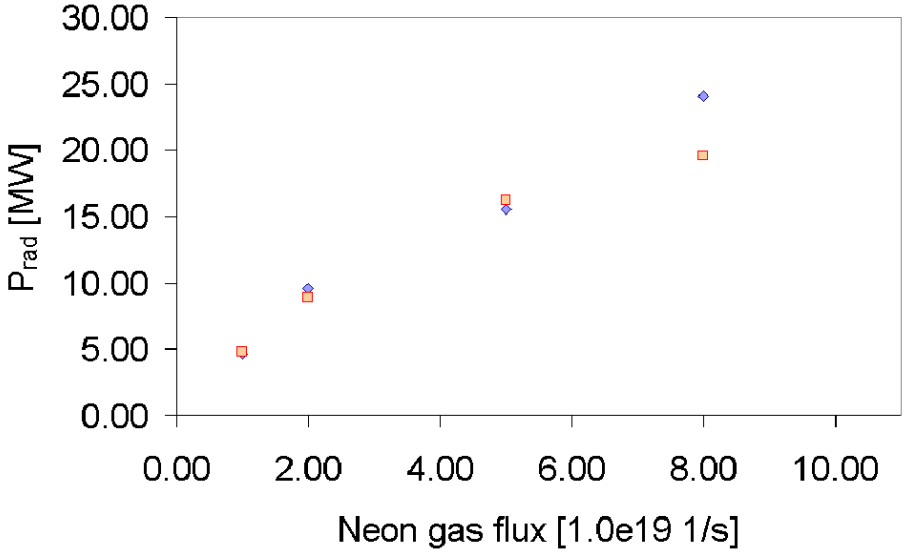
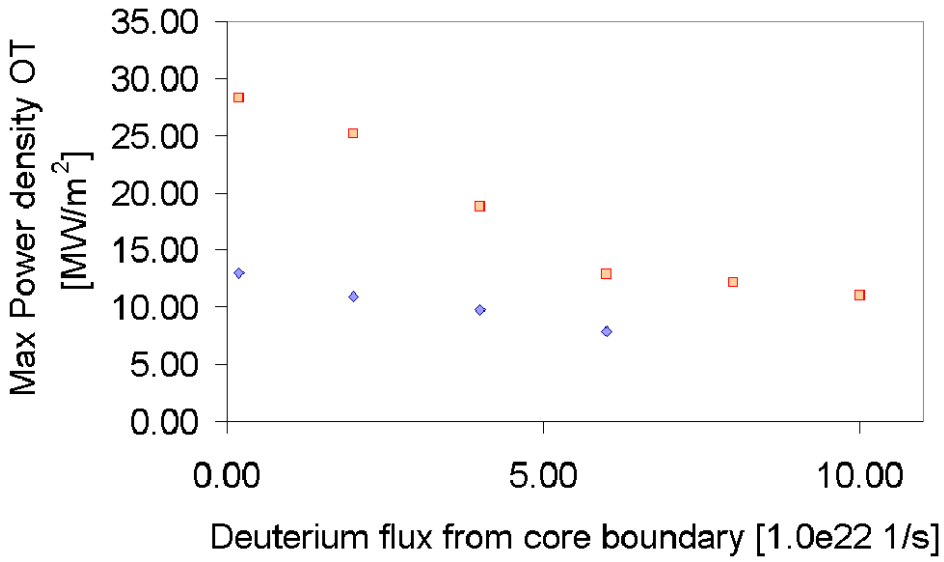
Integrated ITER Scenario Modelling and Density Evolution Prospects

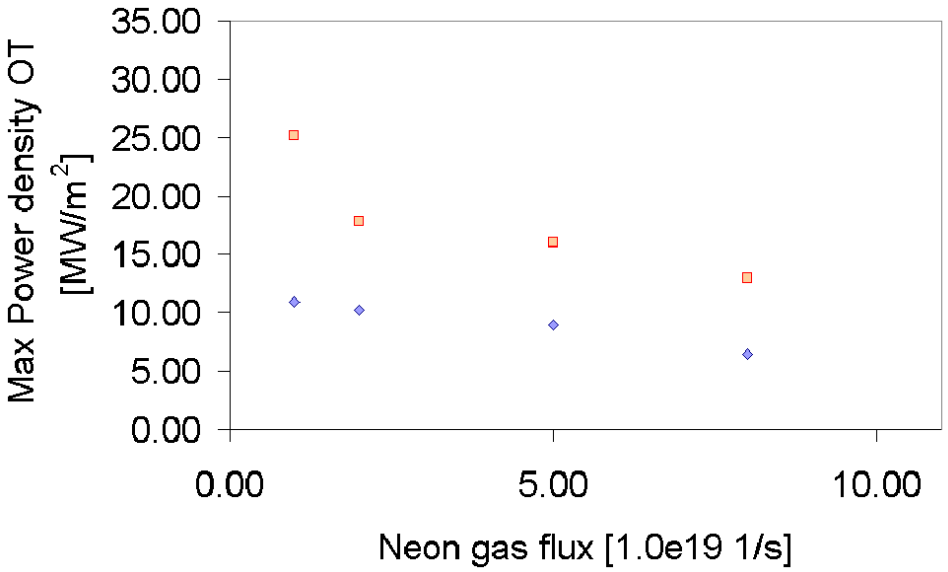
S. Wiesen, P. Belo, L. Garzotti, F. Koechl, V. Parail, G. Corrigan, J. Lönnroth, V. Kotov, R. Kemp, ITM ISM-WG

Core ion / neon gas flux scans:



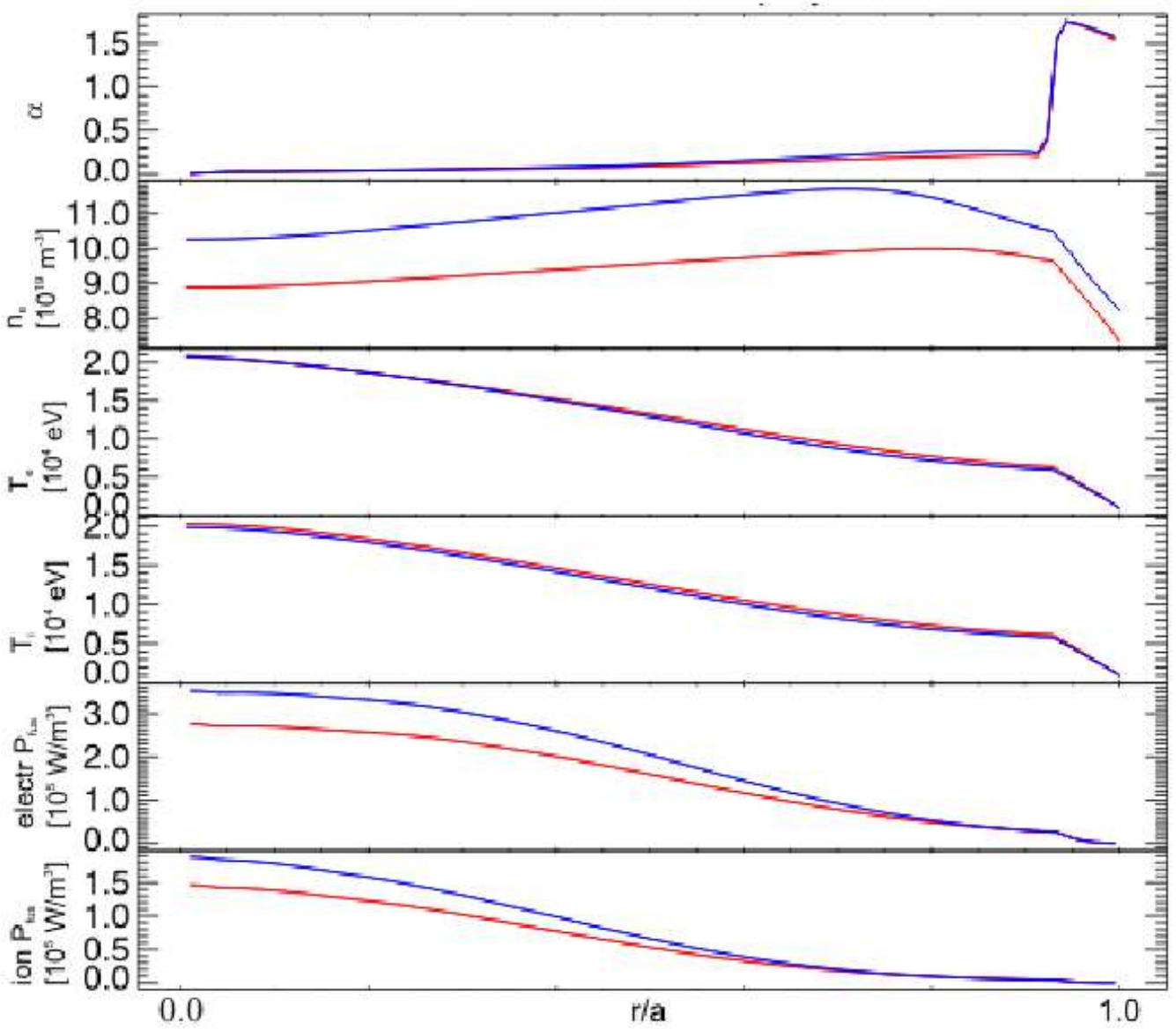






High / Low confinement

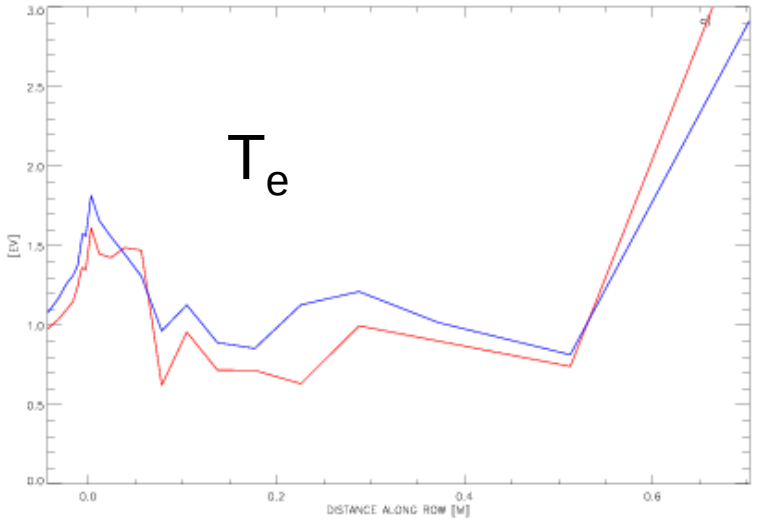
Continuous pellet injection:



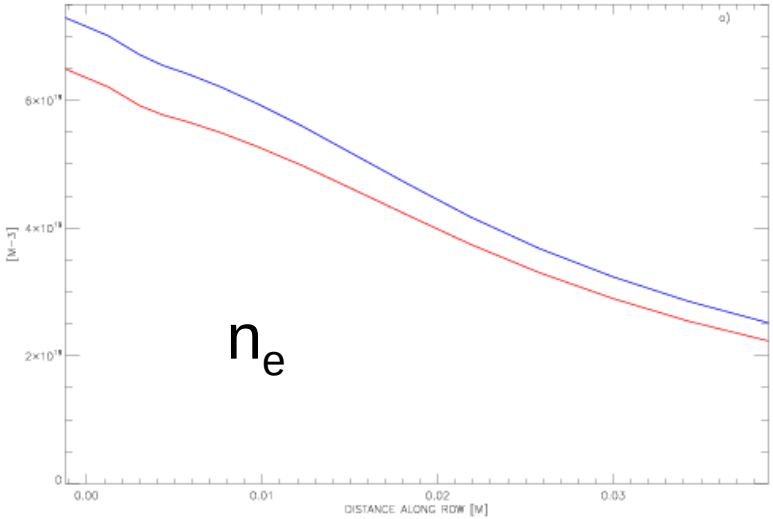
High / Low confinement

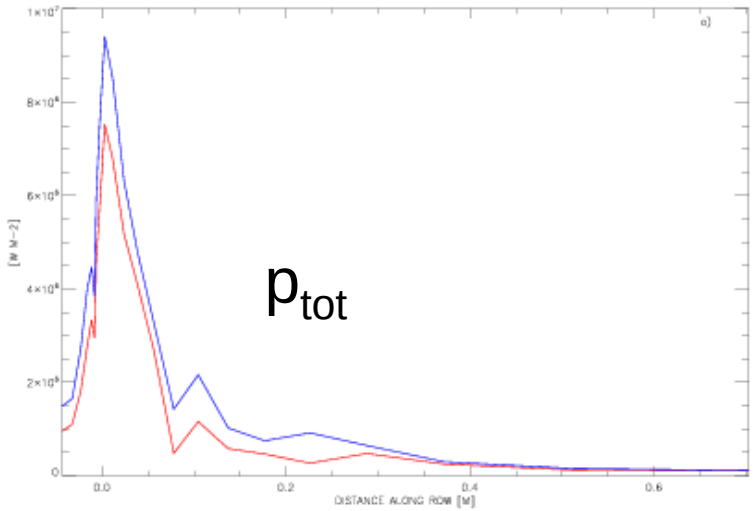
Continuous pellet injection:

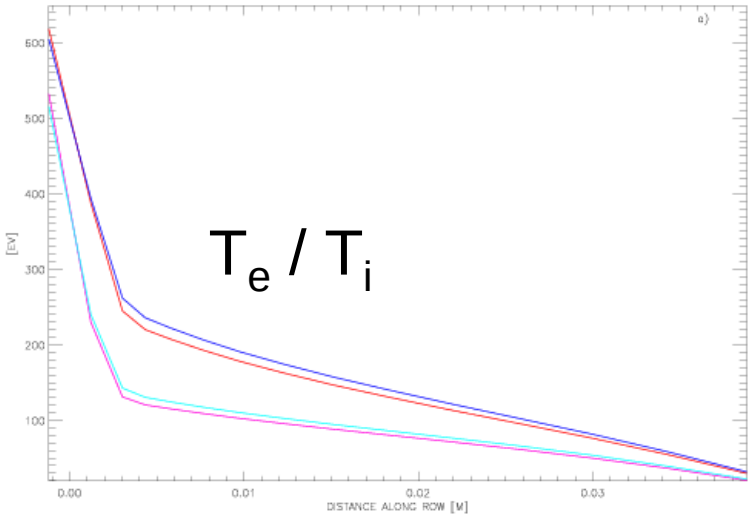
Outer target:



Outer mid-plane:

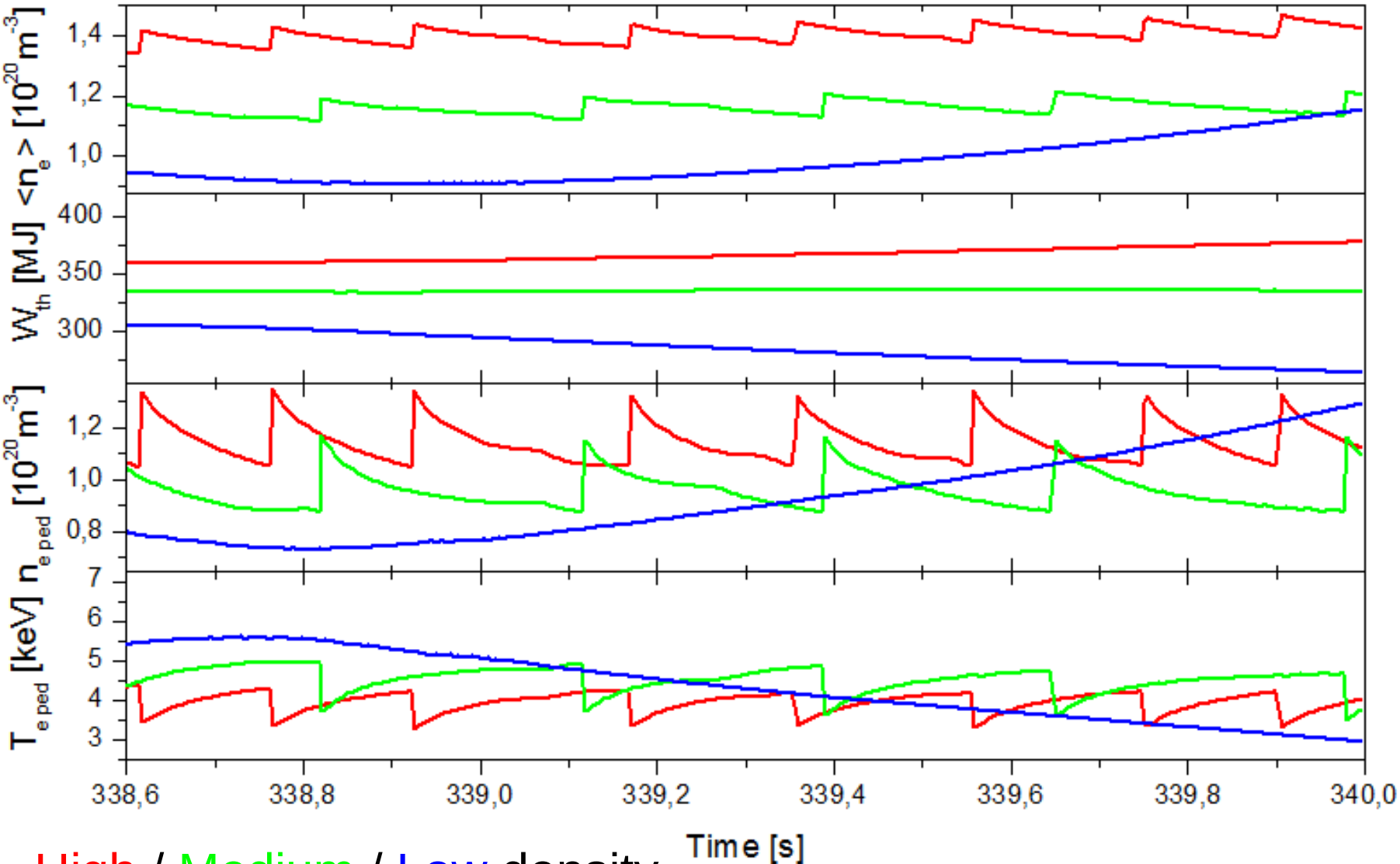






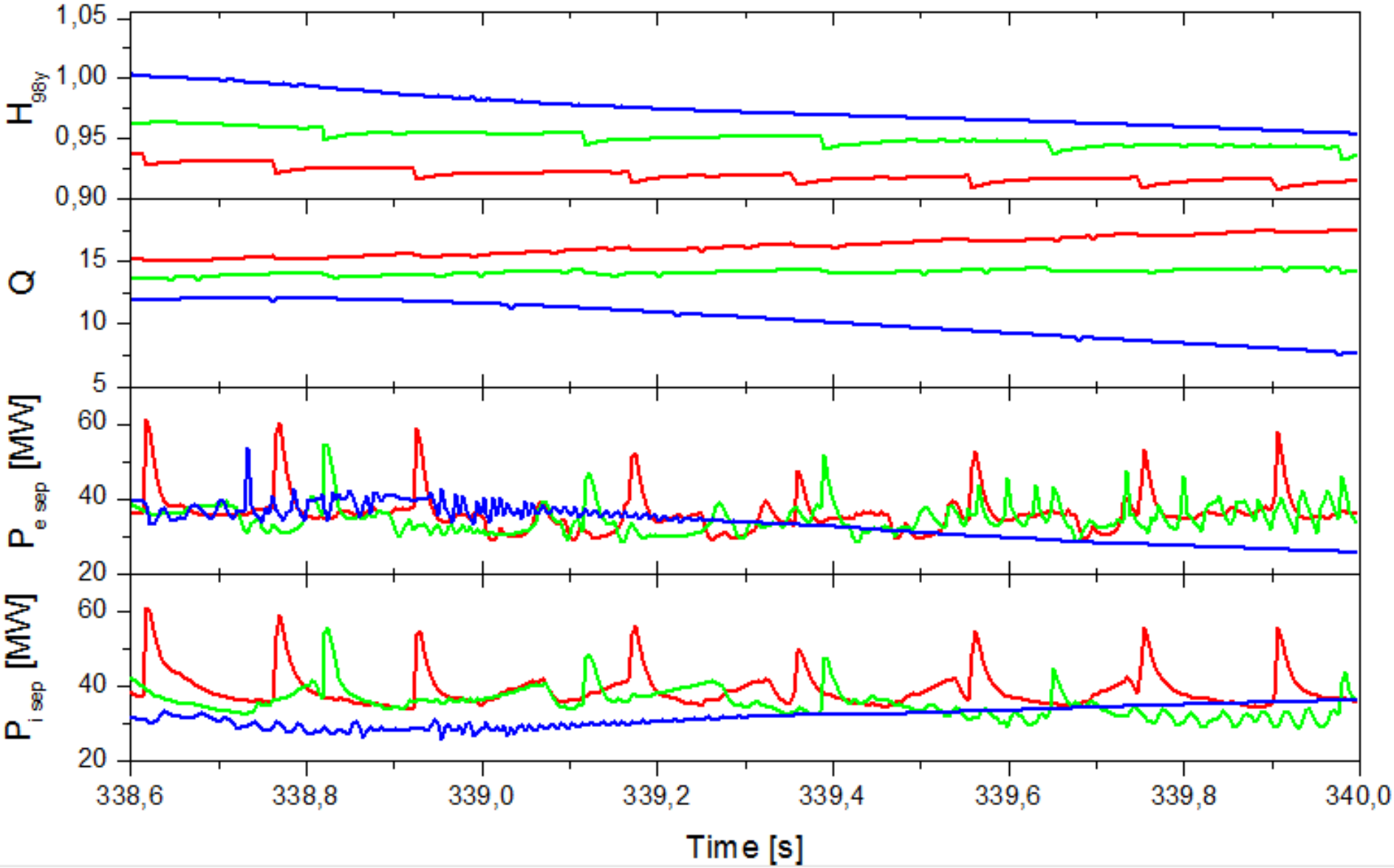
High / Low confinement

Discrete pellet injection:
60 MW SOL radiation, 50% plasmoid drift



High / Medium / Low density

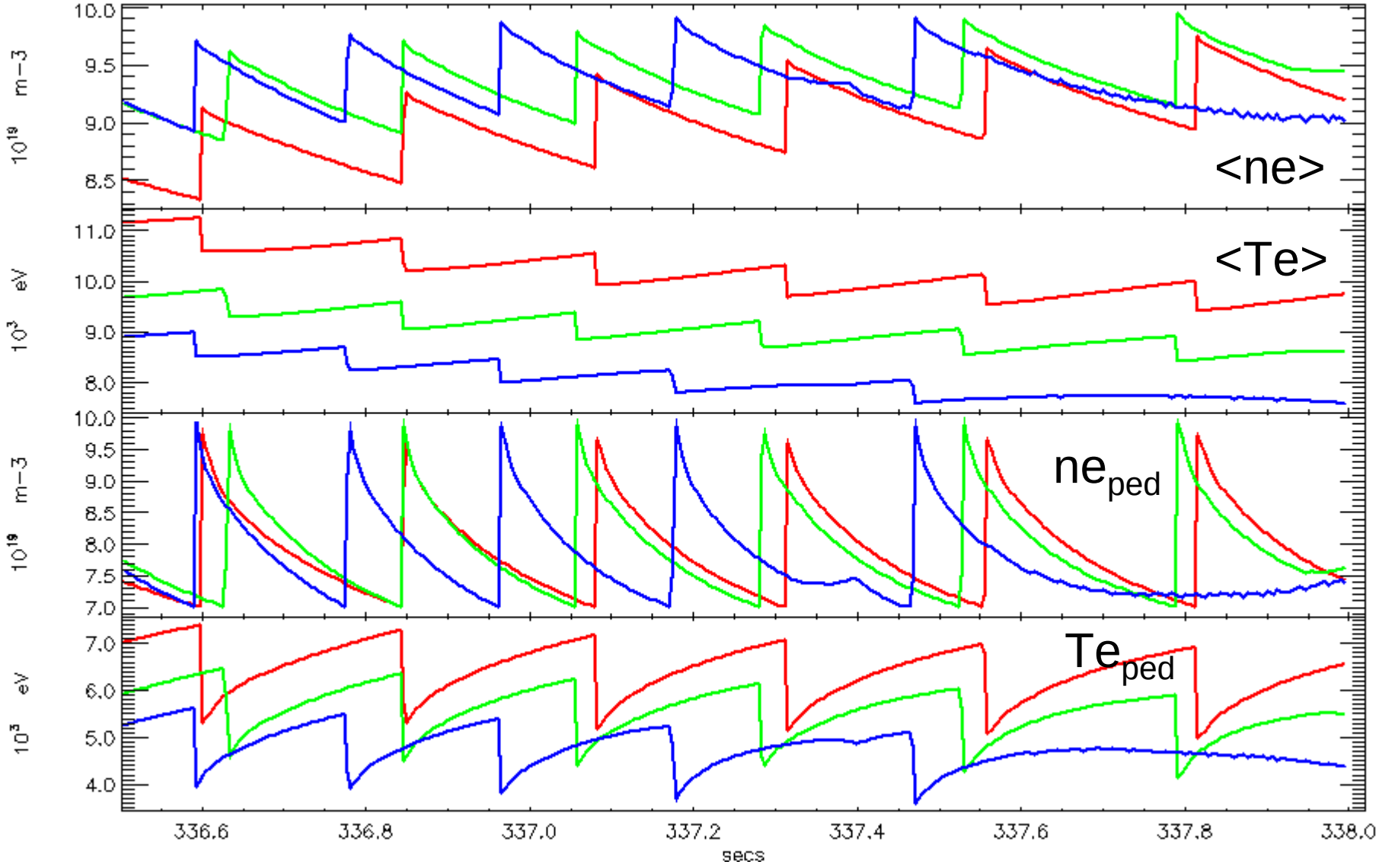
60 MW SOL radiation, 50% plasmoid drift



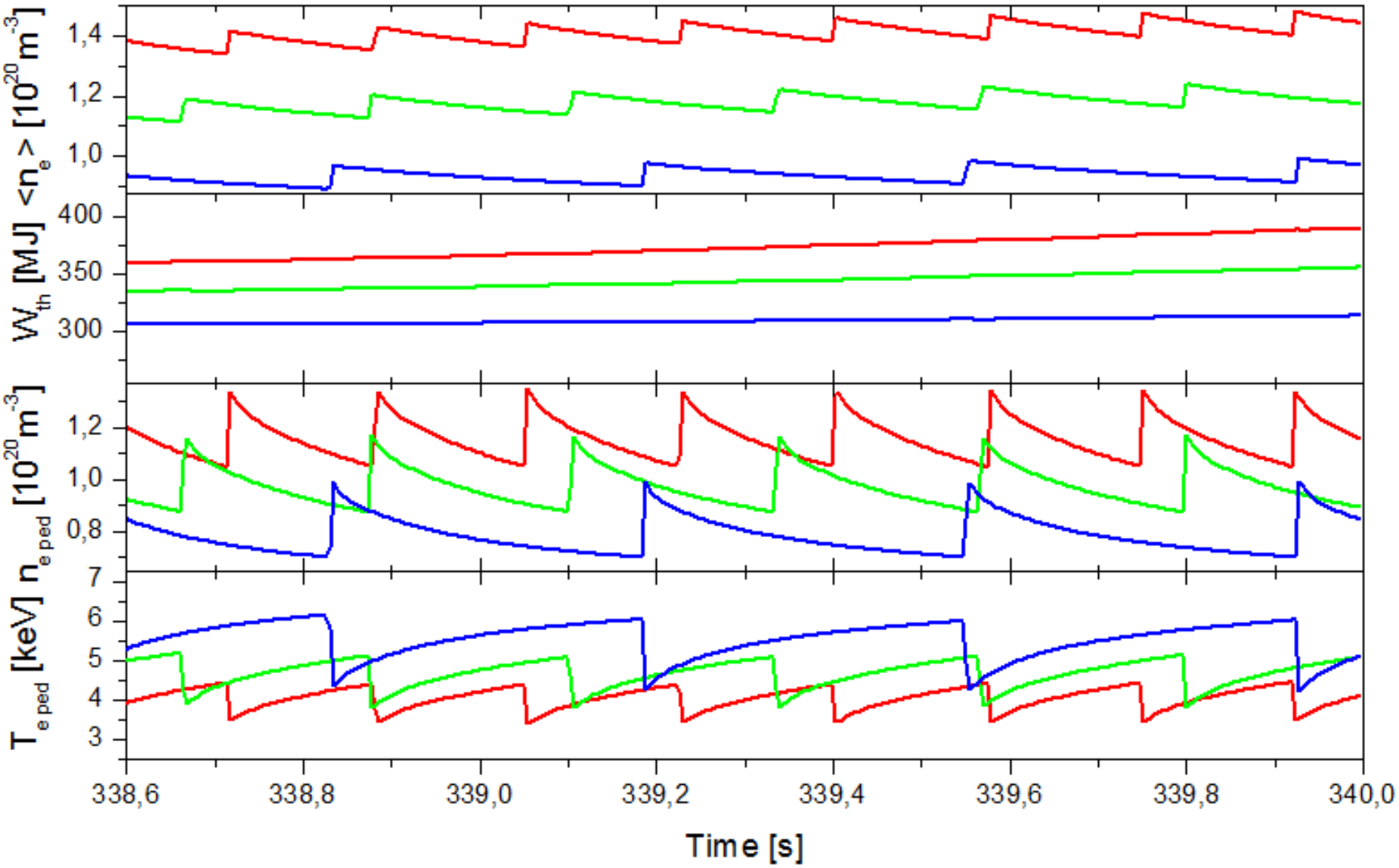
High / Medium / Low density

60 MW SOL radiation, 50% plasmoid drift, Medium density

α_{crit} = 1.7
α_{crit} = 1.5
α_{crit} = 1.3

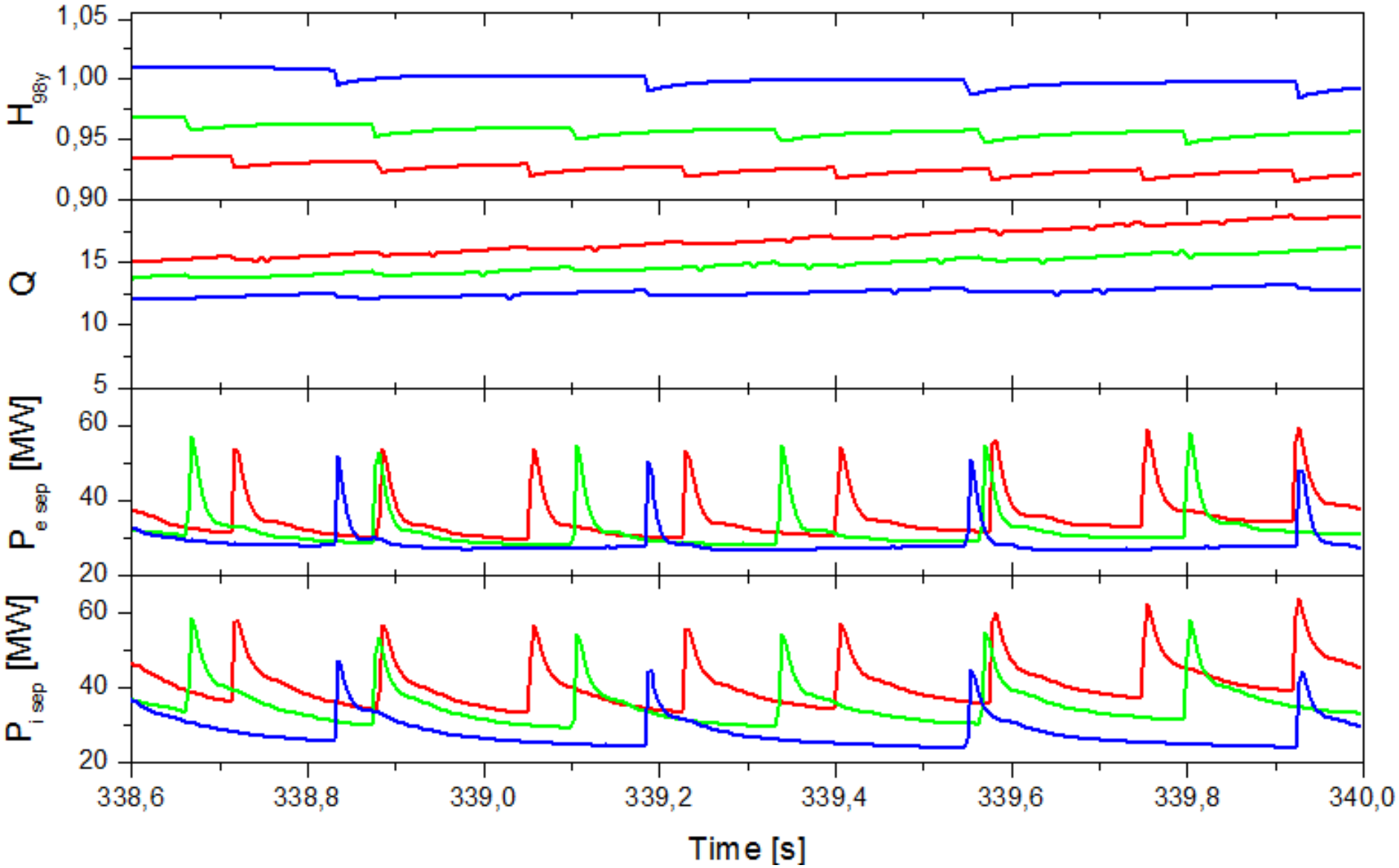


40 MW SOL radiation, 50% plasmoid drift



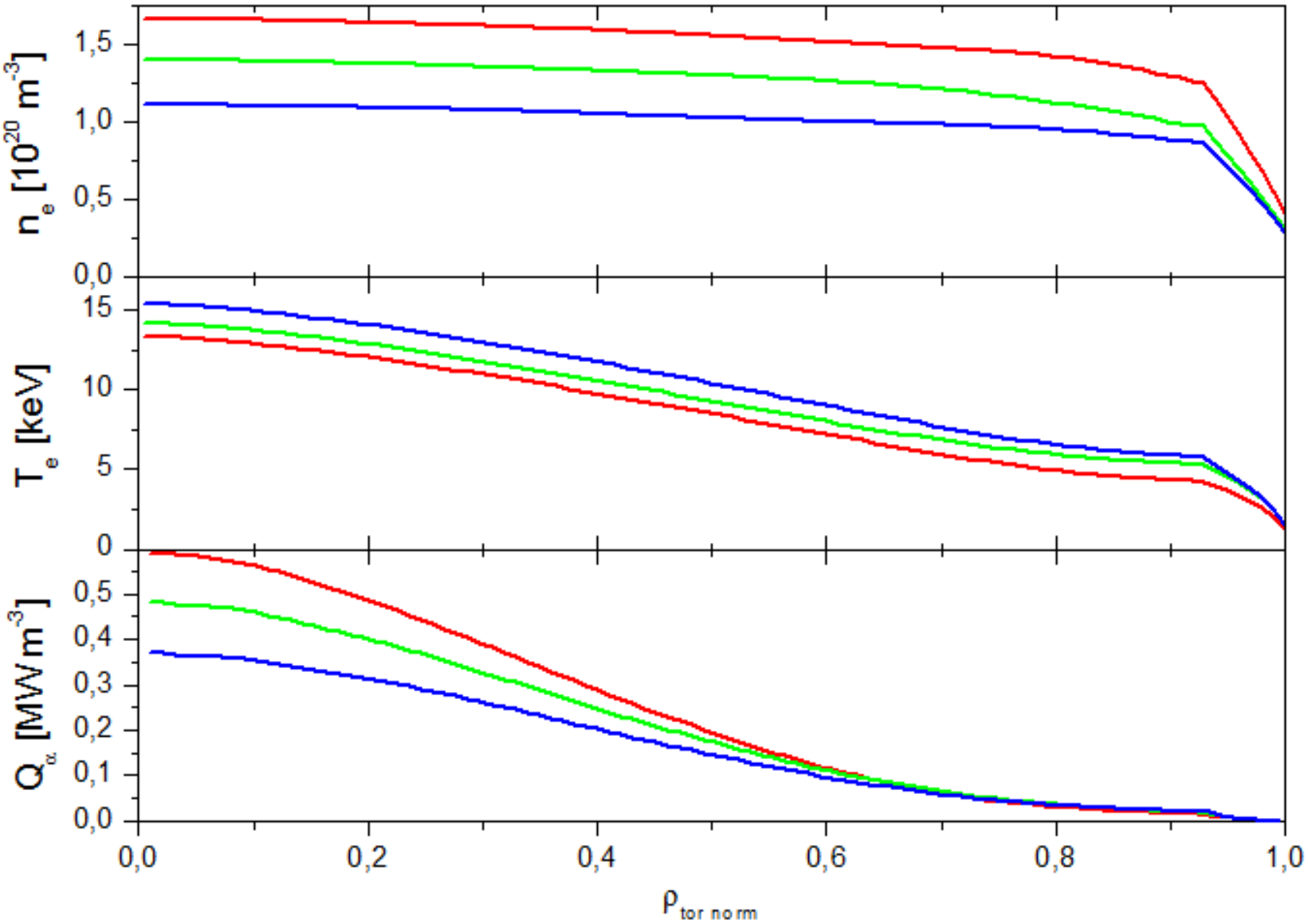
High / Medium / Low density

40 MW SOL radiation, 50% plasmoid drift



High / Medium / Low density

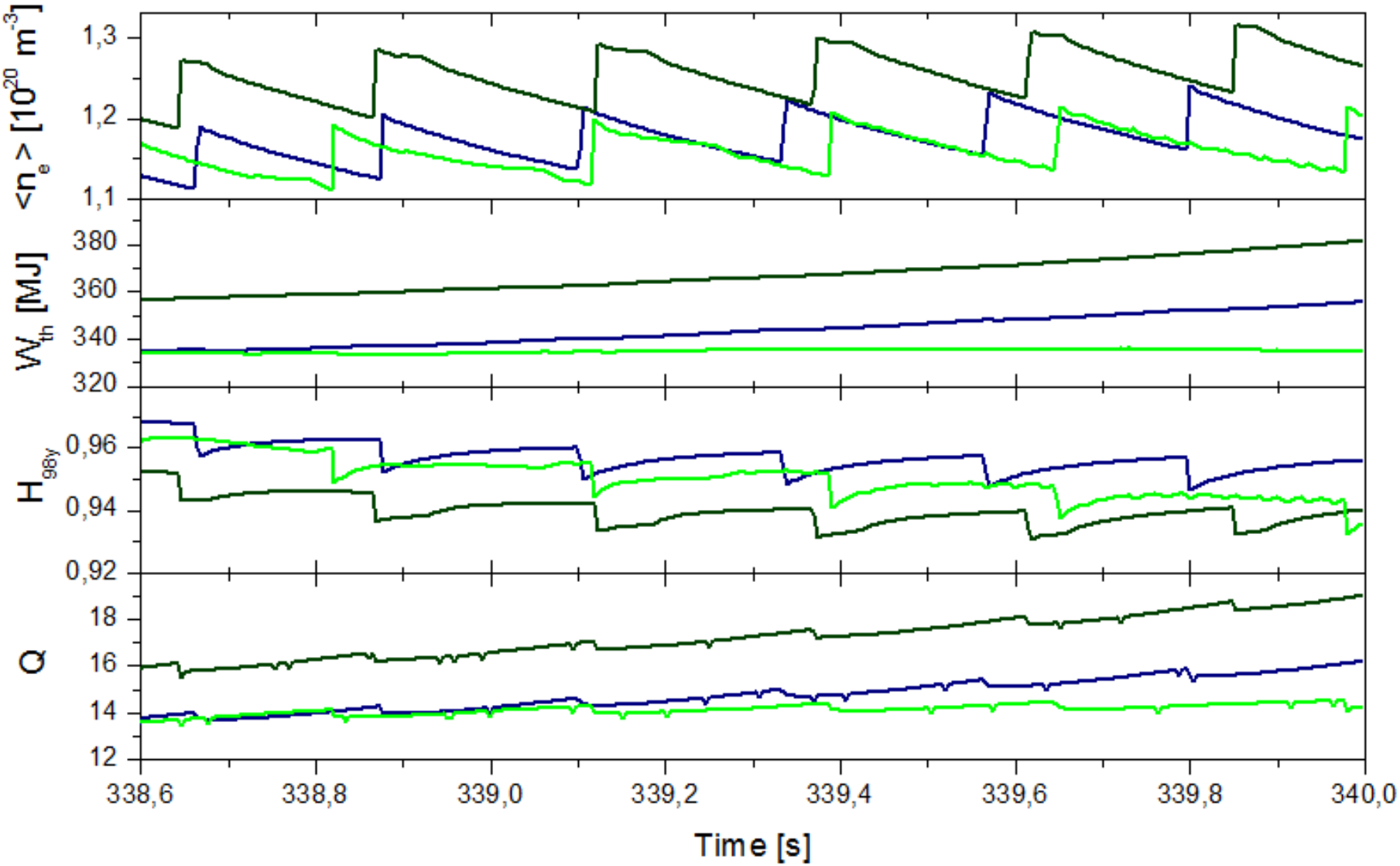
40 MW SOL radiation, 50% plasmoid drift



High / Medium / Low density

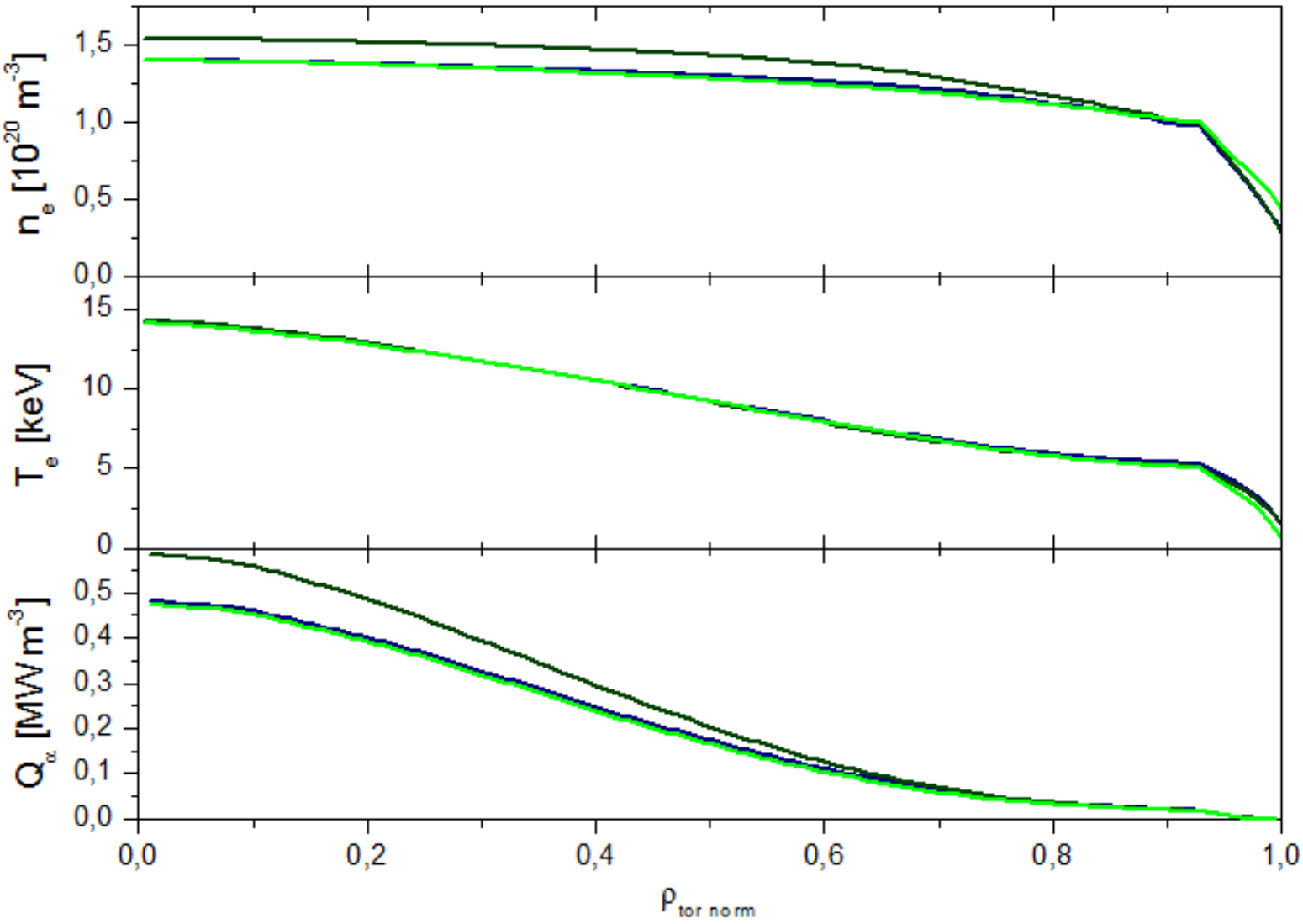
Medium density, cross-comparison

100% drift, 60 MW SOL rad.
50% drift, 60 MW SOL rad.
50% drift, 40 MW SOL rad.



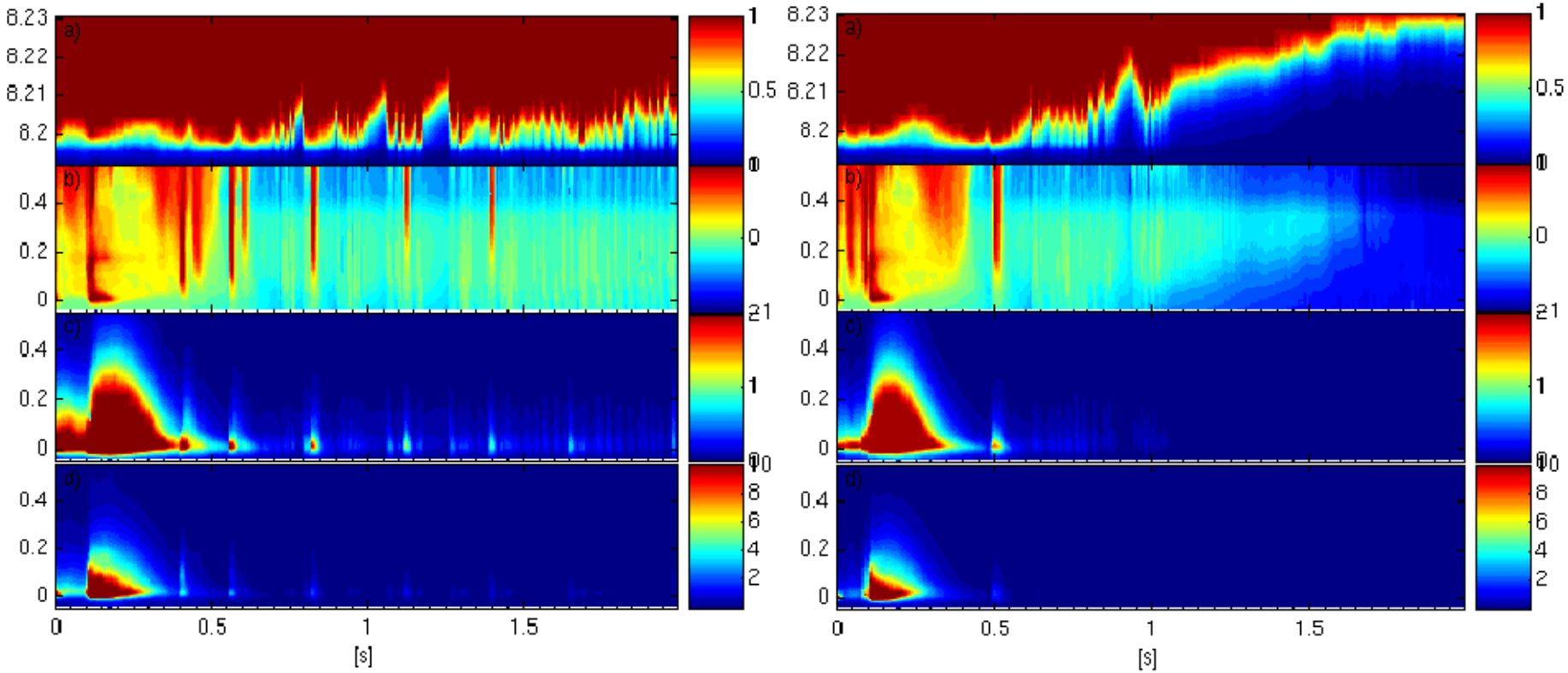
Medium density, cross-comparison

100% drift, 60 MW SOL rad.
50% drift, 60 MW SOL rad.
50% drift, 40 MW SOL rad.



Divertor conditions:

Inner divertor legs:



Medium density

Low density

50% drift, 60 MW SOL rad.

To be done:

- Continuation of continuous pellet simulation
- Consideration of 40 MW scan
- Concluding remarks
- Send draft to ISM for internal review