Abstract Submitted
for the DPP08 Meeting of
The American Physical Society

Sorting Category: 5.1.0 (Computational)

Analysis of Ignitor Discharges with Double X-point Magnetic Configurations[1] A. AIROLDI, G. CENACCHI, Italy, B. COPPI, M.I.T. — The Ignitor experiment[2] was proposed and designed to achieve ignited and sub-ignited conditions in well confined deuterium-tritium plasmas. Thanks to its unique features (high magnetic field up to 13 T, high plasma current up to 11 MA, and high plasma density up to $5 \times 10^{20}\mathrm{m}^{-3}$), Ignitor is the only device capable of exploring plasma regimes that are relevant to a net power producing D-T reactor and are not accessible to other existing or planned machines. Double X-point scenarios with magnetic field up to 13 T and plasma current up to 9 MA are analyzed. In these configurations, the access to a high confinement state is assumed when the available plasma heating power, supported by the injected auxiliary power, is larger than the L-H threshold value, according to recent suggested scalings[3]. The H-regime is modeled by a global reduction of the thermal transport coefficients used for the L-regime. Situations in the presence and in the absence of sawtooth oscillations have been investigated. Quasi-stationary conditions can be attained when a process producing re-distribution of pressure and current profiles is active.

[1]Sponsored in part by ENEA of Italy and by the U.S. D.O.E.
[2]B.Coppi, A.Airoldi, F.Bombarda, et al.,*Nucl. Fusion* **41**, 1253 (2001)
[3]D.C. McDonald, A.J. Meakins, et al., *PPCF* **48**, A439 (2006)

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Date submitted: July 17, 2008 Electronic form version 1.4