

Abstract Submitted
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Ignition and Burning Plasma Regimes in the Double Null Configuration of Ignitor* G. CENACCHI, Italy, A. AIROLDI, IFP-CNR, Italy, B. COPPI, M.I.T. — A new operating scenario for Ignitor with $B_T \approx 13$ T, $I_p \approx 9$ MA and a double X-point configuration (X-points just outside the first wall) has been investigated. The analyses carried out are intended to optimize the plasma volume, the safety factor, and the magnetic configuration near the first wall. A transport analysis has been performed to simulate the current density evolution (required for equilibrium configurations) and to verify the possibility of accessing H-mode regimes. The H-mode power threshold has been estimated from recent scalings based on various machines. The required threshold power is consistent with that available from the provided ICRH system, combined with the Ohmic and α -particle heating. In the numerical simulations a volume average density $n_e \approx 3 \times 10^{20} \text{m}^{-3}$, average $Z_{eff} \approx 1.5$, and 3 MW of ICRH power absorbed by the plasma have been considered. Ignition and performances quite similar to the ones expected for the standard 11 MA scenario with the “extended” first wall configuration can be reached. Even without accessing the H-regime and with pessimistic assumptions about the energy confinement time, plasma parameters of relevance to the physics of burning plasmas can be attained.

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- Prefer Oral Session
 Prefer Poster Session

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Special instructions: Ignitor poster session

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