

Abstract Submitted  
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**Ignition and other Plasma Regimes for the Ignitor Experiment<sup>1</sup>**

A. AIROLDI, G. CENACCHI, CREATE, Italy, B. COPPI, M.I.T., P. DETRAGIACHE, ENEA, Italy — Ignitor was the first, and presently is the only experiment designed to reach ignition conditions in a D-T plasma. The reference scenario at the maximum parameters of 13 T and 11 MA achieves ignition with ohmic heating only or with the contribution of modest amounts of ICRH auxiliary heating. Scenarios that are less demanding for the machine have been considered as well. Thanks to the flexibility of the Poloidal Field System, Ignitor is capable of producing a variety of equilibrium configurations (i.e., “extended limiter” or Double X-point) over a wide range of magnetic fields (8 to 13 T) and plasma currents (5 to 10 MA). The analysis by means of the 1 1/2D transport code JETTO, without considering the access to an enhanced confinement regime, indicate the possibility of producing considerable amounts of  $\alpha$ -power in D-T plasmas.<sup>2</sup> The available ICRH power is expected to allow access to improved confinement regimes, for which a 0 dimensional analysis has been carried out that shows the range of plasma parameters to be expected in various cases. An updated and comprehensive review of all the considered operational scenarios for Ignitor scenarios is presented.

<sup>1</sup>Sponsored in part by ENEA of Italy and by the U.S. D.O.E.

<sup>2</sup>A. Airoidi, et al., *Proceed. EPS Conf.*, paper PI-196, 2006.

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