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**Abstract Submitted
for the DPP04 Meeting of
The American Physical Society**

Sorting Category: 6.7.0

Spectrum of Experiments on Burning Plasmas: The Case for a U.S. Ignition Device¹ M. SALVETTI, B. COPPI, MIT — A spectrum of experiments on meaningful fusion burning plasmas is a natural step for fusion research. Within this spectrum, a U.S. experiment (Columbus) designed to reach ignition in a D-T plasma is envisioned. To shorten the design and construction times, the Columbus concept [1] adopts the same design solutions as those developed for the compact high field device Ignitor to be sited near the Italian-French border. The plasma volume is about 50% larger than that of Ignitor but Columbus ($R_0 \simeq 1.5m$, $a \times b \simeq 0.54 \times 0.98m^2$) retains the ability to reach ignition by Ohmic heating alone by producing the same average poloidal field $\bar{B}_p \simeq 3.4T$, as Ignitor, with the same magnetic safety factor $q_\psi \simeq 3.6$. The corresponding plasma current $I_p \simeq 12.5MA$ is the same as that estimated for the Iter-Feat concept assuming the same safety factor. It is expected that the first wall and the ICRH systems will be designed with complementary criteria to those adopted for Ignitor. The magnitude and number of issues to be resolved in the physics of burning plasmas is the main justification for two parallel ignition experiments at this time. [1] B. Coppi and M. Salvetti, MIT (RLE) Report PTP 02/06, 2002

¹Sponsored in part by the US Department of Energy

- Prefer Oral Session
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| Special instructions: Include in Ignitor poster session |
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Date submitted: 22 Jul 2004

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