

Abstract Submitted
for the DPP13 Meeting of
The American Physical Society

All Superconducting Hybrid Magnets for High Field Confinement Experiments* G. GRASSO, Columbus, Italy, B. COPPI, MIT — The limitations on pulse duration and duty cycle that the use of copper magnets for the highest field components of advanced confinement experiments can be overcome by the adoption of “All Superconducting Hybrid” (ASH) magnets in their design. These consist in having MgB₂ superconducting coils, in the outer portion of the magnet, that operate at about 10 K like those adopted for the Ignitor vertical field coils, but can produce up to 10T as in the case of the hybrid magnet with a copper core under construction at Grenoble. Instead, in the case of the envisioned ASH magnets the inner core will be made of high temperature superconductors capable of operating at very high fields. The inclusion of advanced solutions for the coupled toroidal magnet and central solenoid such as that presented in Ref. [1] is envisioned. *Sponsored in part by the US DOE.

[1] B. Coppi and L. Lanzavecchia, Comm. Pl. Phys. Cont. Fus. 47, 11 (1987).

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Date submitted: 10 Jul 2013

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