

Abstract Submitted
for the DPP14 Meeting of
The American Physical Society

High Field Magnet Developments for the Future of High Field Compact Experiments* G. GRASSO, Columbus, Italy, B. COPPI, MIT — The adoption of “All Superconducting Hybrid” (ASH) magnets for the design of new high field confinement machines with relatively long plasma current pulses has been considered. These consist of MgB₂ superconducting coils, in the outer portion of the magnet, that operate at about 10 K like those adopted for the Ignitor[1] 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. 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 [1] such as that concerning the coupled toroidal magnet and central solenoid system for new advanced machines is envisioned. *Sponsored in part by the US DOE.

[1] B. Coppi, et al. *Nucl. Fus.* **53** 104013 (2013).

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Date submitted: 11 Jul 2014

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