

Abstract Submitted  
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**High Field Plasma Experiments with Optimal Temperature Hybrid Magnets**<sup>1</sup> G. GRASSO, Columbus Superconductors, Genoa, Italy, B. COPPI, M.I.T. — Developments in the technology of MgB<sub>2</sub> superconducting magnets operating at temperatures around 10 K has led to envision their use for fields up to 10 T and as components of hybrid (copper for the highest field + MgB<sub>2</sub>) magnets. A hybrid magnet of this kind is being constructed at Grenoble. The common coolant is He-gas, the optimal temperature for Cu being about 30 K. The goal of this solution is to construct machines producing plasmas with values of the poloidal field close to those considered for the design of the Ignitor machine but with longer burning times and higher duty cycles. A perspective of this program is to produce devices to be used as neutron sources or material testing systems. Since the relevant machines will have to be larger than Ignitor, they will have to be able to sustain higher plasma currents under macroscopically stable conditions.

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Francesca Bombarda  
ENEA, Italy

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