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Adoption of MgB₂ Superconducting Coils for the Ignitor Machine and Relevant R&D* G. GRASSO, Columbus (Genova), B. COPPI, MIT, G. GIUNCHI, Edison (Milano) — The progress made in the fabrication of MgB₂ coils of relatively large dimensions has led to the decision of adopting this material for the vertical magnetic field coils of the Ignitor machine, that are the largest. The chosen operating temperature is 15K that is compatible with the He-gas cryogenic cooling system of Ignitor incorporated in the machine design as well with the magnetic field values ($\simeq 4 - 5\text{T}$) in which these coils are designed to operate. In fact, the adoption of the superconducting coils would have required a separate liquid-He cryogenic system. MgB₂ superconductors hold the promise of becoming suitable for high field magnets and, of replacing gradually the normal conducting coils adopted, by necessity, in high field experiments. Therefore, an appropriate R&D program on this material involving different institutions has been undertaken. *Sponsored in part by ENEA, Columbus and Edison of Italy and by the U.S. D.O.E.

Prefer Oral Session
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