

Abstract Submitted  
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**Increase in Birr and reduction of anisotropy of MgB2 with Dy2O3 additions** MIKE SUMPTION, Ohio State Univ - Columbus — Rare earth oxides (REO) such as Dy2O3 and Nd2O3 have been recognized as additives for enhancing the superconducting properties of MgB2. To study this, REO doped MgB2 bulks and wires were fabricated and examined by XRD, SEM and TEM. No changes in lattice constants were observed after REO doping, although some reduction in grain size was observed. TEM results of REO doped sample showed nano-size inclusions (20 – 100 nm) present both inside MgB2 grains and on grain boundaries. An increase in flux pinning strength was observed; only 10% at 4 K, it increased to 50% at 20 K. In-field resistivity measurement (up to 28 T) was performed from 4-40 K. The Bc2 values extracted from both resistivity and magnetic measurements were unchanged by Dy2O3 additives. However, the irreversibility field Bk was increased in response to Dy2O3 doping suggesting a decrease in the anisotropy. The Bk increase, about 1 T between 4-35 K, is of particular interest at higher temperatures (20-30 K).

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