

## SUPPORTING INFORMATION

### **Gd<sub>12</sub>Co<sub>5.3</sub>Bi and Gd<sub>12</sub>Co<sub>5</sub>Bi, Crystalline Doppelgänger with Low Thermal Conductivities**

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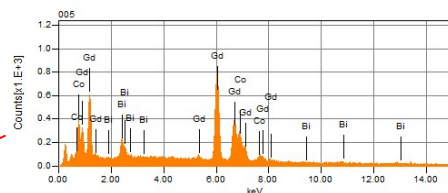
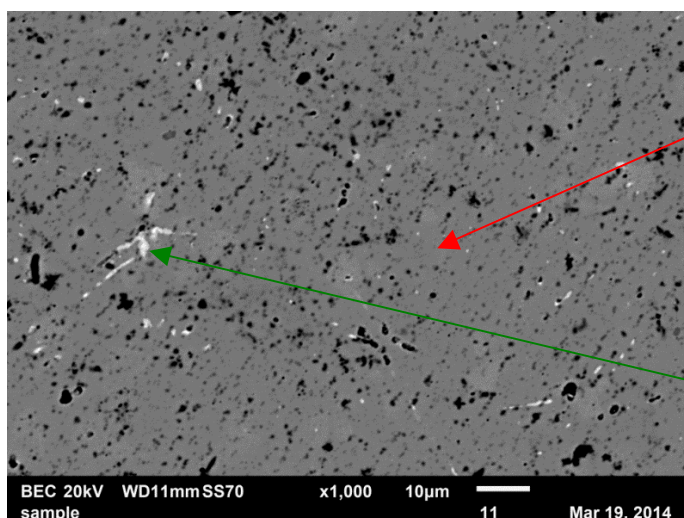
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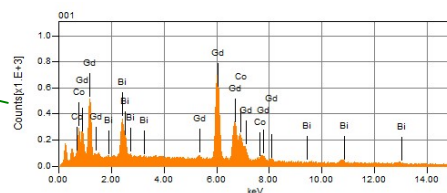
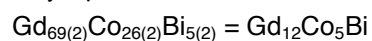
**Figure S1.** SEM/EDX analysis of polished samples of (a) Gd<sub>12</sub>Co<sub>5</sub>Bi and (b) Gd<sub>12</sub>Co<sub>5.3</sub>Bi.

**Figure S2.** Rietveld fits to synchrotron powder XRD patterns of (a) Gd<sub>12</sub>Co<sub>5</sub>Bi and (b) Gd<sub>12</sub>Co<sub>5.3</sub>Bi. The pattern in (b) contains a trace amount of an unidentified second phase that has not been modelled.

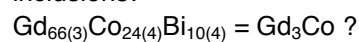
(a)



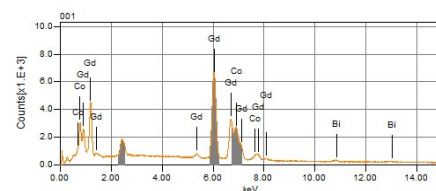
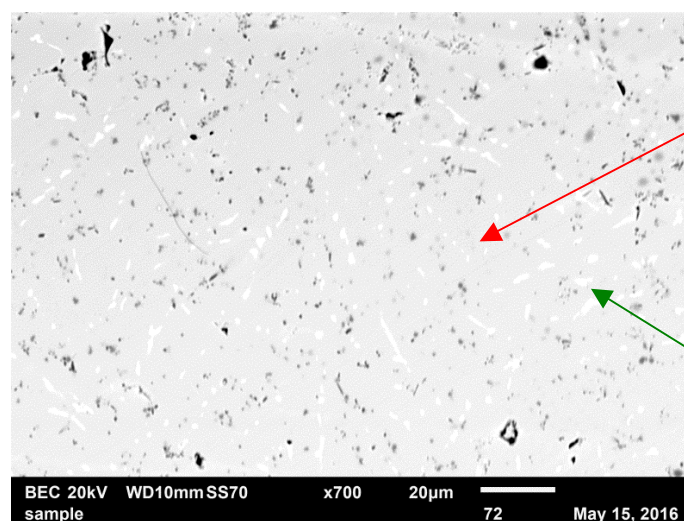
major phase:



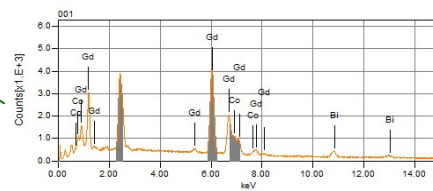
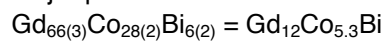
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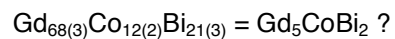
(b)



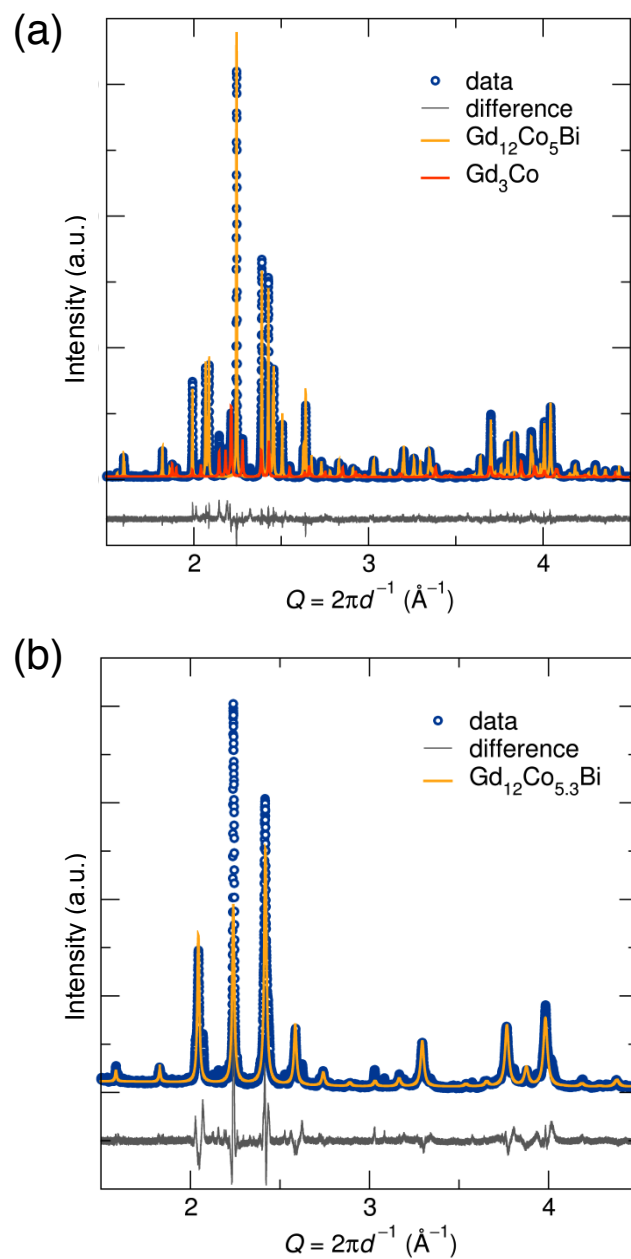
major phase:



inclusions:



**Figure S1.** SEM/EDX analysis of polished samples of (a)  $\text{Gd}_{12}\text{Co}_5\text{Bi}$  and (b)  $\text{Gd}_{12}\text{Co}_{5.3}\text{Bi}$ .



**Figure S2.** Rietveld fits to synchrotron powder XRD patterns of (a)  $\text{Gd}_{12}\text{Co}_5\text{Bi}$  and (b)  $\text{Gd}_{12}\text{Co}_{5.3}\text{Bi}$ . The pattern in (b) contains a trace amount of an unidentified second phase that has not been modelled.