

## Enhancement of Curie temperature in double perovskites $\text{Ba}_{2-x}\text{La}_x\text{FeMoO}_6$

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(Presented on 12 November)

We have investigated effects of the partial substitution of trivalent La for divalent Ba on the magnetic properties of the double perovskite  $\text{Ba}_2\text{FeMoO}_6$ . Polycrystalline  $\text{Ba}_{2-x}\text{La}_x\text{FeMoO}_6$  samples have been prepared by the conventional solid-state reaction in a stream of 5%  $\text{H}_2/\text{Ar}$  gas. Magnetization (15 K, 5 kOe) is  $2.6\mu_B/\text{f.u.}$  for  $x=0.5$  which is smaller than the value of  $3.8\mu_B/\text{f.u.}$  for  $x=0$ . The partial substitution of  $\text{La}^{3+}$  for  $\text{Ba}^{2+}$  considerably enhances the Curie temperature  $T_C$ . The  $T_C$  increases from 316 K for  $x=0$  to 336 K for  $x=0.5$ . © 2003 American Institute of Physics. [DOI: 10.1063/1.1556253]