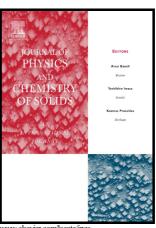
## Author's Accepted Manuscript

Observation of weak ferromagnetism and the sizable magnetocaloric effect in Co<sub>2</sub>V<sub>2</sub>O<sub>7</sub>

J. Sannigrahi, S. Giri, S. Majumdar



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### **ACCEPTED MANUSCRIPT**

Observation of weak ferromagnetism and the sizable magnetocaloric effect in  $Co_2V_2O_7$ .

J. Sannigrahi S. Giri S. Majumdar \* .

Department of Solid State Physics, Indian Association for the Cultivation of Science, 2A & B Raja S. C. Mullick Road, Kolkata 700 032, INDIA

#### Abstract

The magnetic behaviour of cobalt pyrovanadate compound  $\text{Co}_2\text{V}_2\text{O}_7$  with dichromate structure is reported. The compound undergoes long range magnetic ordering below  $T_C = 8$  K and our study identifies the ground state to be a canted antiferromagnetic type with a weak ferromagnetic component. The transition at  $T_C$  is found to be first-order in nature as evident from the presence of distinct thermal hysteresis in the temperature dependent magnetization data. Below  $T_C$ , a significantly large value of magnetic relaxation is observed which is possibly due to the metastability associated with the first order phase transition. Interestingly, the sample exhibits a sizable magneto-caloric effect around  $T_C$  ( $\sim 4.1$  J.kg<sup>-1</sup>.K<sup>-1</sup> for 50 kOe of field change) which is reasonably high among antiferromagnetic transition metal oxides with weak ferromagnetism.

Key words: Pyrovanadate, Weak ferromagnetism, Magnetocaloric effect

<sup>\*</sup> Corresponding author. Tel.: +91 33 24734971; fax: +91 33 24732805 *Email address:* sspsm2@iacs.res.in (S. Majumdar).

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