



Contribution ID: 31

Type: not specified

## Pressure study of molecular magnet based on 3d and 4d metals

Wednesday, July 8, 2015 1:20 PM (15 minutes)

The pressure measurements of magnetic materials give the opportunity to study the fundamental aspects of magnetism. In this study a molecular ferromagnet  $\text{Co}^{\text{II}}(\text{pyrazol})_4 \cdot 2[\text{Nb}^{\text{IV}}(\text{CN})_6]$  has been studied with the use of ac/dc magnetometry under hydrostatic pressure up to 13 kbar. The studied compound crystallizes in the  $I4_1/a$  space group where cyanido-bridged structure is decorated with pyrazole molecules coordinated to  $\text{Co}^{\text{II}}$  centers [1]. It is a unique structure with one type of  $\text{Co}^{\text{II}}-\text{NC}-\text{Nb}^{\text{IV}}$  linkage. The spin values of both magnetic ions are  $\frac{1}{2}$ , with  $g_{\text{Co}} \approx 4.55$ ,  $g_{\text{Nb}} \approx 2.0$  for cobalt and niobium respectively. The phase transition in ambient pressure occurs at  $T_{\text{C}} = 5.4$  K. Initially applying pressure shifts the temperature of phase transition to lower values down to a critical point, after which further applied pressure starts to increase the  $T_{\text{C}}$ . It has been proved that the compound is changing from a ferromagnetic ordered magnet without pressure to a ferrimagnet in high pressure.

[1] D. Pinkowicz, R. Pełka, O. Drath, W. Nitek, M. Bałanda, A. M. Majcher, G. Poneti and B. Sieklucka, *Inorg. Chem.*, 2010, 49, 7565-7576.

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**Session Classification:** Molecular magnets

**Track Classification:** molecular magnets and nanomagnets