Pressure dependence of the N??el temperature in $NdMn_2$ and related compounds

Kim-Ngan N.H., Brommer P.E., Hien T.D., Franse J.J.M.

Van der Waals-Zeeman Laboratorium, Universiteit van Amsterdam, Amsterdam, Netherlands; Cryogenic Laboratory, Faculty of Physics, University of Hanoi, Hanoi, Viet Nam

Abstract: Resistivity measurements on $Nd(Mn_{1-x}Cu_x)_2$ compounds in the temperature range from 4.2 to 300 K show that magnetic order disappears for x exceeding 0.07. In order to investigate the role of the lattice parameter in the suppression of magnetic order, the effect of pressure on the N??el temperature has been studied by performing resistivity measurements under pressures up to 5 kbar. A linear decrease with pressure has been found with dT_N/dp values of -3.45 K/kbar, -2.76 K/kbar and -1.59 K/kbar for the compounds with x = 0, 0.03 and 0.05, respectively. From a comparison with the effect of chemical pressure observed in (Nd, Lu)Mn_2 compounds, it is concluded that the lattice parameter is not the (only) decisive factor, but that the disturbance of the Mn-Mn interaction (caused by substitution of Mn sites) plays an important role. ?? 1992.

Year: 1992
Source title: Physica B: Physics of Condensed Matter
Volume: 182
Issue: 1
Page : 27-32
Cited by: 1
Link: Scorpus Link
Correspondence Address: Kim-Ngan, N.H.; Van der Waals-Zeeman Laboratorium, Universiteit van Amsterdam, Amsterdam, Netherlands
ISSN: 9214526
CODEN: PHYBE
Language of Original Document: English
Abbreviated Source Title: Physica B: Physics of Condensed Matter
Document Type: Article
Source: Scopus
Authors with affiliations:

1. Kim-Ngan, N.H., Van der Waals-Zeeman Laboratorium, Universiteit van Amsterdam, Amsterdam, Netherlands
2. Brommer, P.E., Van der Waals-Zeeman Laboratorium, Universiteit van Amsterdam, Amsterdam, Netherlands
3. Hien, T.D., Van der Waals-Zeeman Laboratorium, Universiteit van Amsterdam, Amsterdam, Netherlands, Cryogenic Laboratory, Faculty of Physics, University of Hanoi, Hanoi, Viet Nam
4. Franse, J.J.M., Van der Waals-Zeeman Laboratorium, Universiteit van Amsterdam, Amsterdam, Netherlands