the body-centered cubic and the face-centered cubic crystal. We obtain a distinct broadening of the curves in the corresponding amorphous cases. The broadening rises appreciably as the disorder increases. These results for the present simple theoretical model confirm the experimentally obtained exciton band broadening[2,3]).

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THE EFFECT OF PRESSURE ON THE NÉEL TEMPERATURE OF CHROMIUM-VANADIUM ALLOYS

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Synopsis

The pressure dependence of the Néel temperature of chromium-vanadium alloys with less than 3 at % vanadium was determined by electrical resistivity measurements under hydrostatic pressure up to 3000 atm. The Néel temperature of each alloy varies linearly with pressure in the observed range, with a slope proportional to its value at $p = 0$ atm. The results are interpreted using a model due to Rice, Halperin, Barker and McWhan.

1. *Introduction.* The antiferromagnetism of chromium is known to persist upon the addition of small amounts of manganese and vanadium, and under high pressure. The influence of these factors on the antiferromagnetic structure is rather complex; without microscopic (*e.g.* neutron diffraction) measurements we can only roughly characterize it by the change of the Néel temperature (T_N).

It appears that the Néel temperature is very sensitive to the addition of small amounts of manganese and vanadium. From neutron diffraction experiments Hamaguchi *et al.*[1]) determined the magnetic structure of chromium and its alloys with manganese and vanadium. This investigation confirmed the existence of the spin density wave (SDW) state in chromium and revealed that the addition of manganese beyond a certain concentration (≈ 2 at %) suppresses the SDW state in favour of a commensurate antiferromagnetic structure, and below this concentration the two phases coexist. In the alloys with vanadium the SDW state persists, although the Néel temperature falls rapidly with increasing vanadium concentration. The concentration dependence of the Néel temperature was established by the resistivity measurements of Trego and Mackintosh[2]). For vanadium concentrations below 3 at % and manganese concentrations below 0.75 at %, T_N was shown to depend exponentially on the average number of electrons per atom, n, thus:

$$T_N^{\text{alloy}} = T_N^{\text{Cr}} \exp[\alpha(n_{\text{alloy}} - n_{\text{Cr}})], \tag{1}$$

where α is the same constant for both alloy systems.