be different from that of type A alloys. The dependence of D/T_c on T_c is shown in Fig. 6 for Ni-Rh as an example. The values of D/T_c are obtained from the difference between $\Delta T_c/\Delta p$ observed and $(5/3)\kappa T_c$. For κ, the value of Ni at room temperature was again used. If D is independent of Rh concentration, D/T_c will vary like $-1/T_c$ and the curve normalized to Ni is represented by a dotted curve indicated as $D=$ constant. Therefore, the difference between the curve of D/T_c and that of constant D corresponds to the dependence of D on T_c. In the corner of the figure, the values of D estimated are given in arbitrary units as a function of T_c, where those for Ni-Cu and -Pt alloys are also given for comparison. For both Ni-Pt and -Rh alloys, D shifts to negative side farther than that of Ni-Cu alloys. According to Lang's calculation, widening and transfer effects contribute negatively and positively to D, respectively. Therefore, the farther negative shift of D would suggest that the widening effect overcomes the transfer effect in type B alloys comparing with type A alloys.

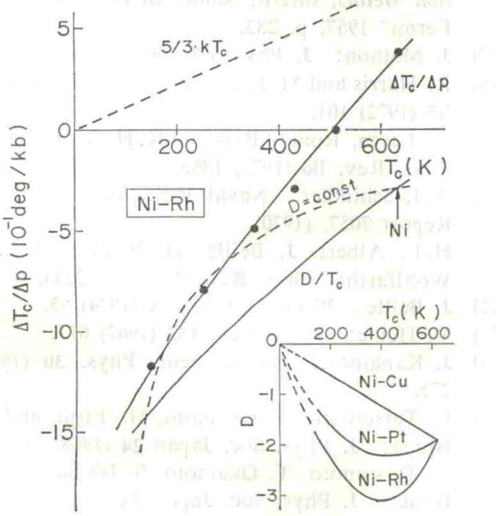

Fig. 6. Examples of the decomposition of $\Delta T_c/\Delta p$ into $(5/3)\kappa T_c$ and D/T_c, the 1st and 2nd terms in eq. (4a), for Ni-Rh alloys. In the corner of the figure, is given D as a function of T_c for Ni-Cu, -Pt and -Rh alloys.

With respect to F and U_b, the decrease in F or U_b results in the negative shift of D, as is already mentioned. Ni-Pt: The decrement of F with c may be smaller than that of Ni-Cu, since Pt has holes, while Cu has no hole. Therefore, U_{eff} will decrease considerably with c from the condition for determining T_c, since c_F's are almost the same for Ni-Pt and -Cu. This decrease in U_{eff} results in the decrease in U_b, as is found from eq. (2), assuming that K will not change much due to the small change in F. If the uniform enhancement model could be applied to the concentrated alloys,[20] U_b may be given as a weighted mean value of those of Ni and Pt. In this case, the decrease in U_b with c means that U_b for Pt is considerably smaller than that of Ni, although no information has been available for U_b of Pt. In conclusion, U_b may contribute more effectively to the farther negative shift of D shown in Fig. 6 than F, while the latter will be effective for type A alloys. Ni-Rh: The arguments for Ni-Rh may be similar to Ni-Pt alloys. Furthermore, it may be expected as already mentioned that the Fermi level passes the peak of the state density curve of Ni as Rh concentration increases,[19] and the sign of F_ε in eq. (4b), representing the gradient of the state density at the Fermi level, changes. Therefore, the transfer effect will be greatly reduced as c increases, which results in the dominancy of widening effect and farther negative shift of D than Ni-Pt alloys.

3.3 *Relation between d-band widening and s–d transfer*

The functional forms of $\Delta T_c/\Delta p$ for Fe-Ni and Fe-Pt[28,29] and $MnAs_xSb_{1-x}$,[5] for example, are like $-1/T_c$ and shows the dominancy of the 2nd term D/T_c in eq. (4b). Edwards and Bartel[5] have pointed that D/T_c term is dominant in case of weak ferromagnetics, by taking only widening term into account and their calculated values fairly explain the experimental ones, like Shiga's estimation. Ni-Pt and -Rh alloys in the present experiment also have $-1/T_c$ character, although the characteristic is less remarkable than materials mentioned above. In type B alloys, therefore, the widening effect is not necessarily dominant but an important factor to $\Delta T_c/\Delta p$.

The importance of the transfer effect for $\Delta T_c/\Delta p$ is clear for type A alloys as is described in § 3.2. In the pressure effect on the spontaneous magnetization of Ni,[17] the transfer effect is dominant at 0 K and widening effect is negligible. As temperature rises, the former effect decreases and the latter increases. Also the transfer term in the pressure effect on the residual resistivity has been discussed by Beyerlein and Lazarus[30] on dilute Ni-Pd alloys.

Based on the considerations mentioned above and in § 3.2 from the standpoints of d-band widening and the $s-d$ transfer effect on $\Delta T_c/\Delta p$, it may be concluded that the former effect is important and becomes dominant near c_F in type B, and both terms are important equivalently in type A alloys, in Ni-based alloys presently concerned. And these circumstances will also be accepted generally.

At concentration where the widening effect in a wide sense including $(5/3)\kappa T_c$ term and the $s-d$ transfer effect counterbalances, $\Delta T_c/\Delta p$ becomes zero and situation may occur regardless of the magnitude of both effects. However, the reduced Curie temperature $T_c(\text{alloy})/T_c(\text{Ni})$ where $\Delta T_c/\Delta p$ becomes zero and changes the sign will be large for the alloy in which the d-band widening tending to decrease the magnitude of $\Delta T_c/\Delta p$ from positive side in Ni rich region overcomes rapidly the transfer effect and the experimental results that reduced Curie temperatures of type B alloys are larger than those of type A alloys support this argument.

The detailed theoretical investigations of the concentration dependence of F and U_{eff} (or U_b) for the alloys presently concerned would be desired for the quantitative analysis of $\Delta T_c/\Delta p$ and further investigation should take the spin fluctuation into account.

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