lattice for the Γ_5^+-component of the stress. The sign of the splitting $3\,\delta_3 = \omega_{\parallel} - \omega_{\perp}$ under [001] stress is assumed to be positive. This is consistent with the results of Nolt [14] for the splitting of the IR resonance in KI:Ag^+. With this sign of δ_3 we obtain the same assignments for the transitions in KCl:Ag^+ and NaCl:Cu^+ as reported in [4], [8], and [9]. Besides this we obtain the transition $\Gamma_1^+ \to \Gamma_3^+$ to be due to the A'-band (5.36 eV) in KCl:Ag^+ which is only separated from the A-band at low temperatures. In the A-band of both systems the $\Gamma_1^+ \to \Gamma_5^+$ transition partly compensates the effect of the $\Gamma_1^+ \to \Gamma_3^+$ transition. Taking the values of $\Delta\omega/\omega$ from the B-band we obtain for the A-band in KCl:Ag^+ the ratio of the oscillator strength $f_3/f_5 = 2.7$ which is smaller than $f_3/f_5 = 5$ obtained by Fröhlich et al. [9]. The results agree in that the $\Gamma_1^+ \to \Gamma_3^+$ transition yields the larger contribution.

The quadratic electron–lattice-interaction term (17) is found to be 1 to 2×10^{-2} at 100 kp/cm² for each band (Table 2), but it has a negative sign for the D-bands. This is consistent with the fact that the quadratic electron–lattice interaction contributions to the oscillator strength of the transitions of Ag^+ in alkali halides could not be neglected [2].

Table 2

	Band	$\Delta\omega/\omega$	$\Delta Q_0^2/\langle Q^2(0)\rangle$	C	f_3/f_5
NaCl:Cu^+	A	2.34×10^{-2} *)	8.6×10^{-2} ***)	$+1.1\times10^{-2}$	1.2
	D	2.34×10^{-2} *)	8.6×10^{-2}	-2.2×10^{-2}	–
KCl:Ag^+	A	2.5×10^{-2} **)	0	$+2.3\times10^{-2}$	2.7
	B	2.5×10^{-2}	0	$+0.8\times10^{-2}$	–
	D	2.5×10^{-2} **)	6.3×10^{-2}	-2.7×10^{-2}	–

*) Obtained from [11].
**) Obtained from the stress effect of the B-band.
***) Obtained from the stress effect of the D-band.

So far we have not taken a static off-centre effect into account (second term in Table 1). If the off-centre effect dominates, $|\Delta f/f|$ decreases with temperature. The case of increasing $|\Delta f/f|$ is realized for the A- and B-band of KCl:Ag^+, whereas the A-band of NaCl:Cu^+ and the D-bands of both systems show the case of decreasing $|\Delta f/f|$ with temperature. For this reason we discuss these bands separately. To deduce the off-centre effect we calculate the δ_3-effect of NaCl:Cu^+ using the resonance mode splitting as obtained from reference [11]. For KCl:Ag^+ we already obtained the δ_3-effect from the analysis of our measurements of the B-band. Subtracting the δ_3-effect we find $\Delta Q_0^2 = |\Delta Q_{\parallel 0}^2 - \Delta Q_{\perp 0}^2|$ for a stress of 100 kp/cm² to be 6% for KCl:Ag^+ and 9% for NaCl:Cu^+ of the square of the vibrational amplitude of the resonance mode at $T = 0$ °K (Table 2). At stresses of about 2000 kp/cm² a nonlinear behaviour should be expected. To test this prediction measurements of the bands under high hydrostatic pressure at low temperatures are in progress. Taking the values of $\Delta\omega/\omega$ and $\Delta Q_0^2/\langle Q^2(0)\rangle$ from Table 2 we obtain the ratio f_3/f_5 for the A-band in NaCl:Cu^+ to be 1.2 . Inserting the parameters of Table 2 into the expressions of Table 1 and into equation (17) we obtain the theoretical temperature dependence of $\Delta f/f$ of the different bands (full lines in Fig. 3).