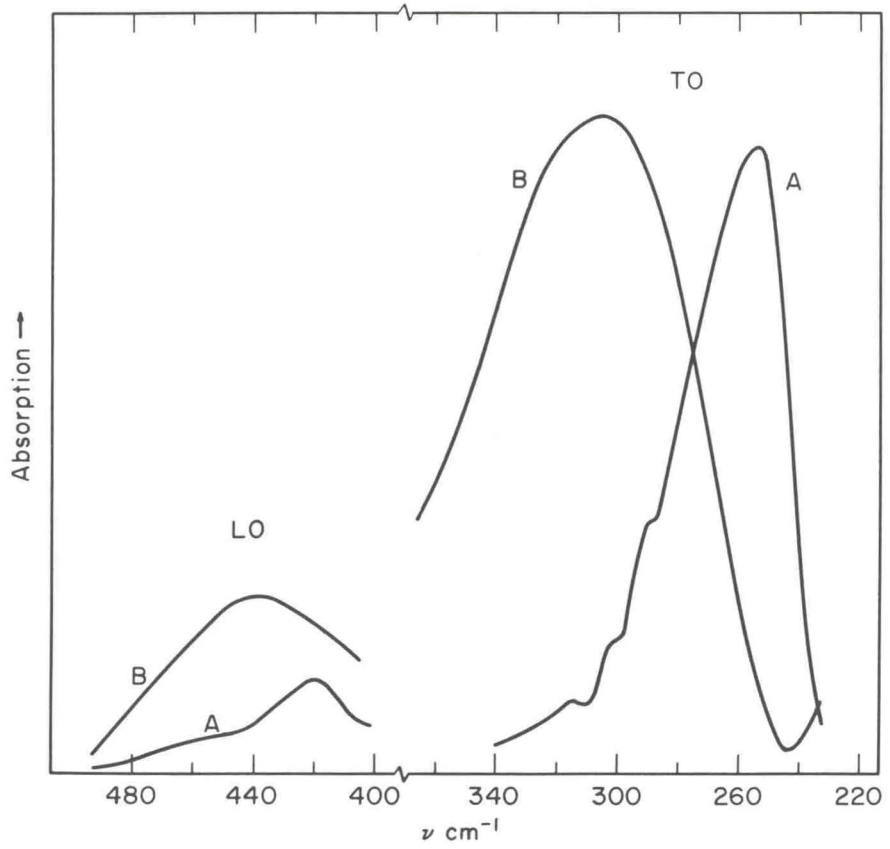


Fig. 2. Comparison of the Transverse and Longitudinal Modes in NaF with and without Pressure.

LiF. A similar analysis was made for KBr and in this crystal the "self-energy" shift is negligible. A similar result was obtained for RbI using other techniques.[22,26]

The results obtained for the Grüneisen parameters for the long-wavelength optical modes from equation 1 and equation 2,

$$\gamma_j(k) = \frac{\partial \ln \nu_j(k)}{\partial \ln V} \qquad (2)$$

are tabulated in Table IV. The agreement with the calculations made from those assuming a rigid-ion model with central forces incorporating repulsion terms of the Born-Mayer [exp(-r/p)] and inverse-power ($r^{-n}$) type agree well. The results using Cowley's theory give somewhat larger values of $\gamma$.

TABLE IV

Gruneisen Parameters for the Long Wavelength Optical Mo

| al from Eq. 2 | Calculated Born-Mayer[27] | Calculated $r^{-n}$ repulsion[28] | Calculated Cowley[29] | C M |
|---|---|---|---|---|
| 2.59 | 2.44 | 3.46 | | |
| 2.95 | 2.43 | 3.00 | | |
| 2.83 | 2.52 | 2.95 | 3.27 | |
| 2.46 | 2.52 | 2.92 | | |