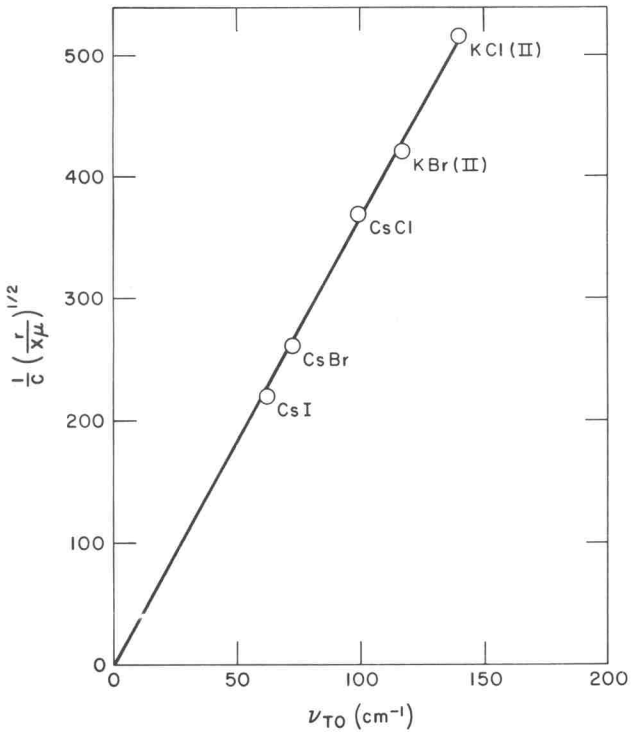

Fig. 14. Plot of TO mode frequency for several CsCl-type salts vs. $1/c(r/x\mu)^{1/2}$ [139]. (Figure reproduced through the courtesy of the authors and Academic Press, New York.)

of the high frequency mode in the $ZnS_{1-x}Se_x$ system.

Certain molecular lattice modes were investigated by McDevitt et al. [67] and Fondere et al. [187]. The experiments are more difficult to perform since a thicker sample is needed, and gaskets are necessary to accomplish this. Molecular lattice vibrations have been observed to also shift toward higher frequencies with increasing pressure. Raman experiments [188] have demonstrated that molecular lattice vibrations are more sensitive to pressure than ionic lattice modes, as expected.

Pressure dependencies of KI, RbI and their mixed crystals have been determined [189]. The mode Grüneisen parameters were determined and compared well with the calculated parameters from a rigid ion model using the Born-Mayer type potentials. Similar measurements have also been made for IR-active phonon modes in alkali-earth fluorides [190]. The pressure dependence of the Raman spectra of the alkaline-earth fluorides is also available [191]. Several anti-fluorite structures have been studied at high pressures (e.g., Mg_2Si, Mg_2Ge, Mg_2Sr) [192].

First and second order Raman spectra have recently been obtained on hexa-

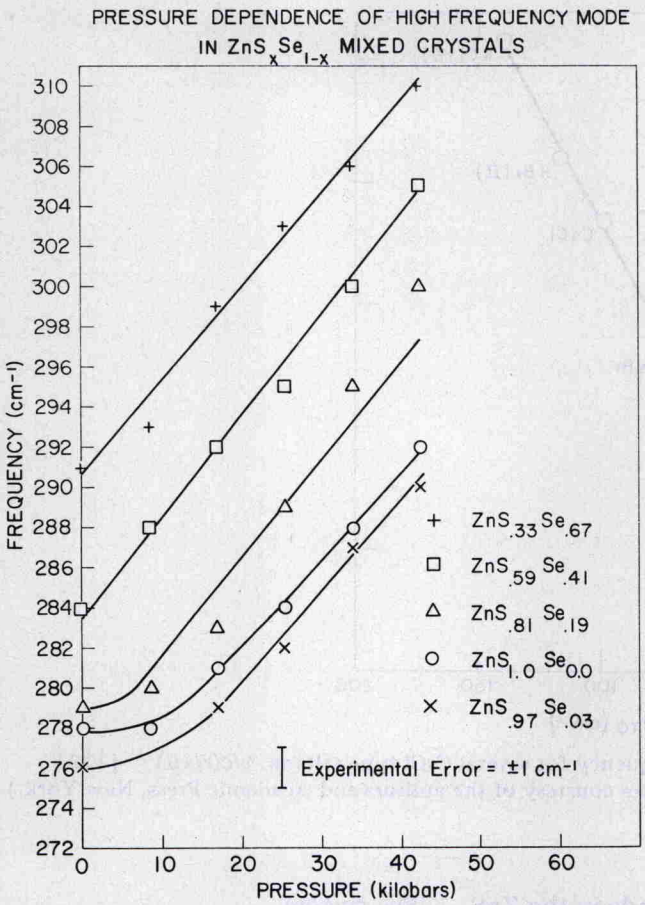

Fig. 15. Pressure dependencies of high frequency mode in $ZnS_{1-x}Se_x$ mixed crystals [185]. (Figure reproduced through the courtesy of the authors and Academic Press, New York.)

gonal ZnS (wurtzite) at pressures to 40 kbar [193]. No phase transformation to a cubic phase was observed. The Grüneisen parameters were found to be 0.99 for the ν_{LO} mode and 1.81 for the ν_{TO} mode. For the ν_{TA} mode the value ranged from −1.79 to 2.38 in the second-order spectrum. The splitting between ν_{TO} and ν_{LO} decreases with pressure. Raman (one- and two-phonon) spectra of GaP at pressures to 135 kbar were determined [194]. Mode Grüneisen parameters were calculated. Raman and far-IR studies to 45 kbar of the phase transition in paratellurite (TeO_2) were made recently [195]. At the phase transition at 9 kbar an E mode at 122 cm^{-1} splits into two components in the IR and Raman spectra. These results aided in assigning the various phonon modes in TeO_2. Raman spectra to 4 kbar were obtained for TiO_2