

$$E \sim \frac{3K}{1-2\sigma}$$

— Bulk modulus
— poisson's ratio

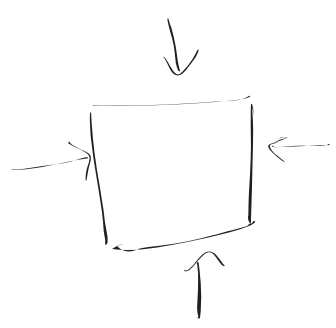
for most minerals

$$E \approx 1.5 K$$

Poisson's ratio measure of deformation under differential stress (Not a function of ions)



Bulk Modulus is resistance to compression



$$K \sim \frac{Z_a Z_c e^2 (n-1)}{V_0}$$

anion valence molecular Volume cation valence electron charge

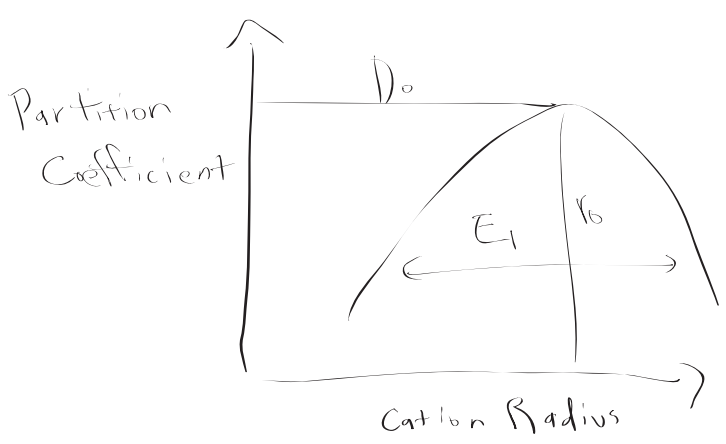
E is a function of ionic charge!

higher charge = higher E or W or ΔG

$$E_{M2}^{1+} < E_{M2}^{2+} < E_{M2}^{3+}$$

when $r_i - r_o = 0$

$$W = 4\pi E^{1+} < 4\pi E^{2+}$$



$D_o e^{\left(\frac{-W}{RT}\right)} = D_i$
larger W means more incompatible
if E ≈ stiffer lattice