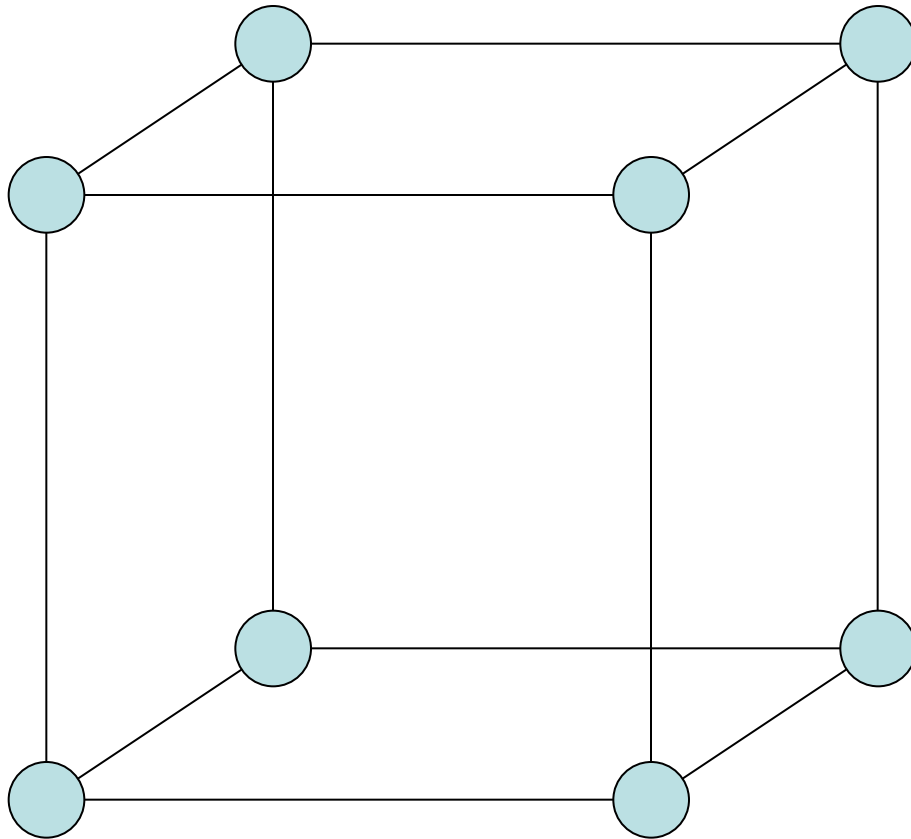
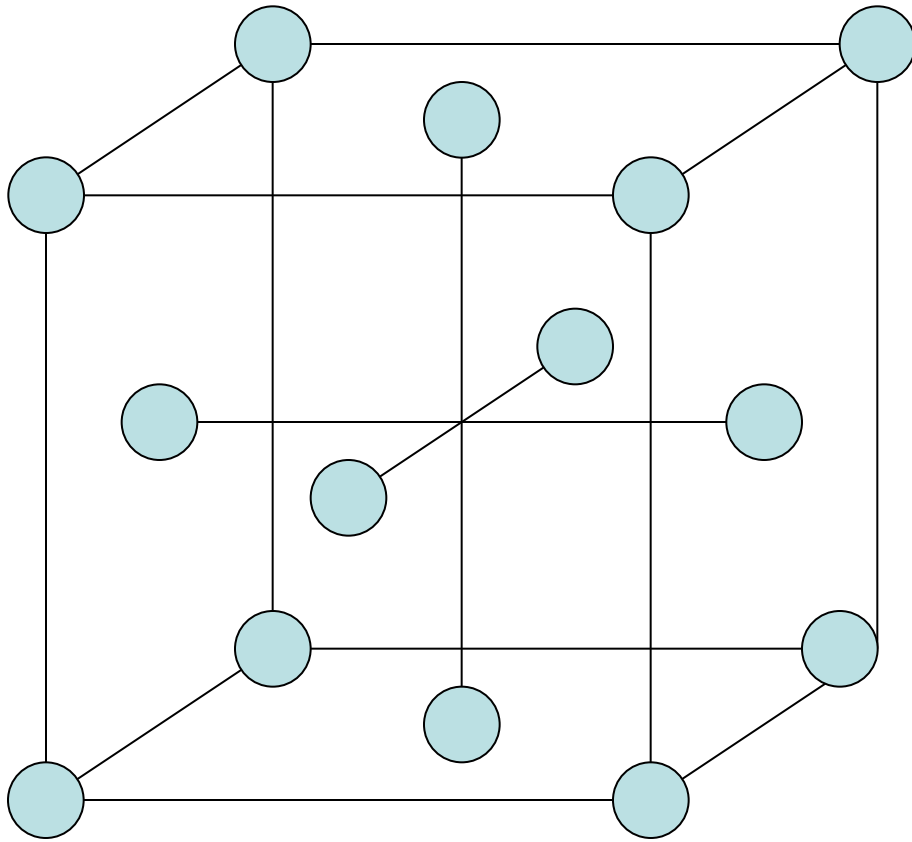


Kondenzált anyagok fizikája

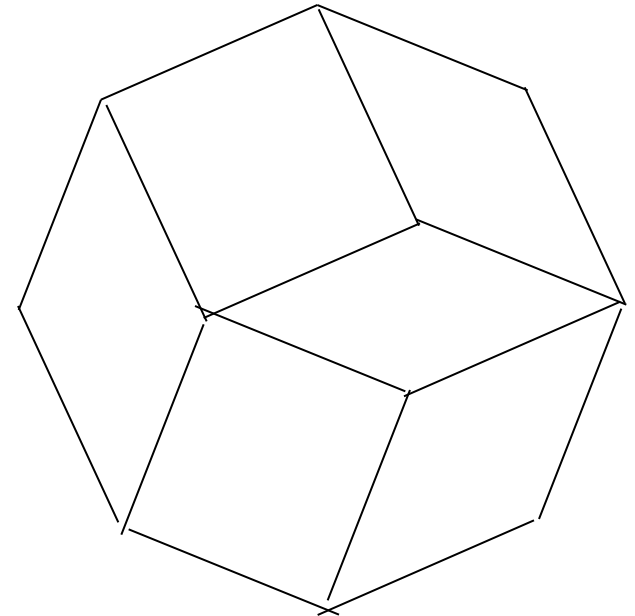
Segédanyag 1.



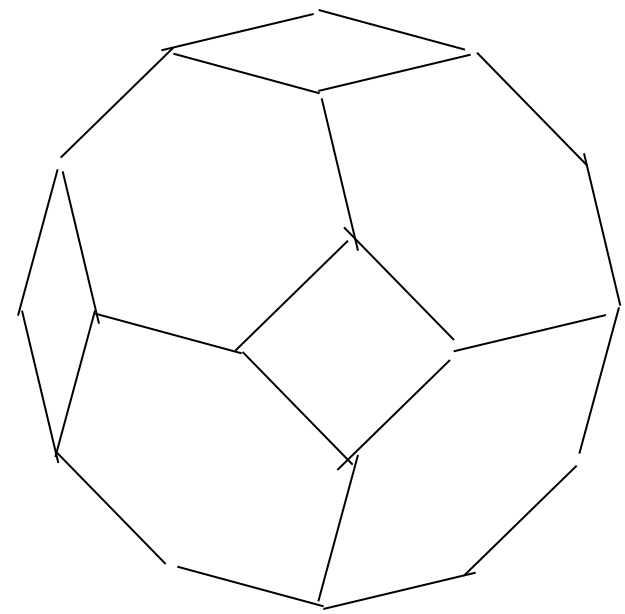
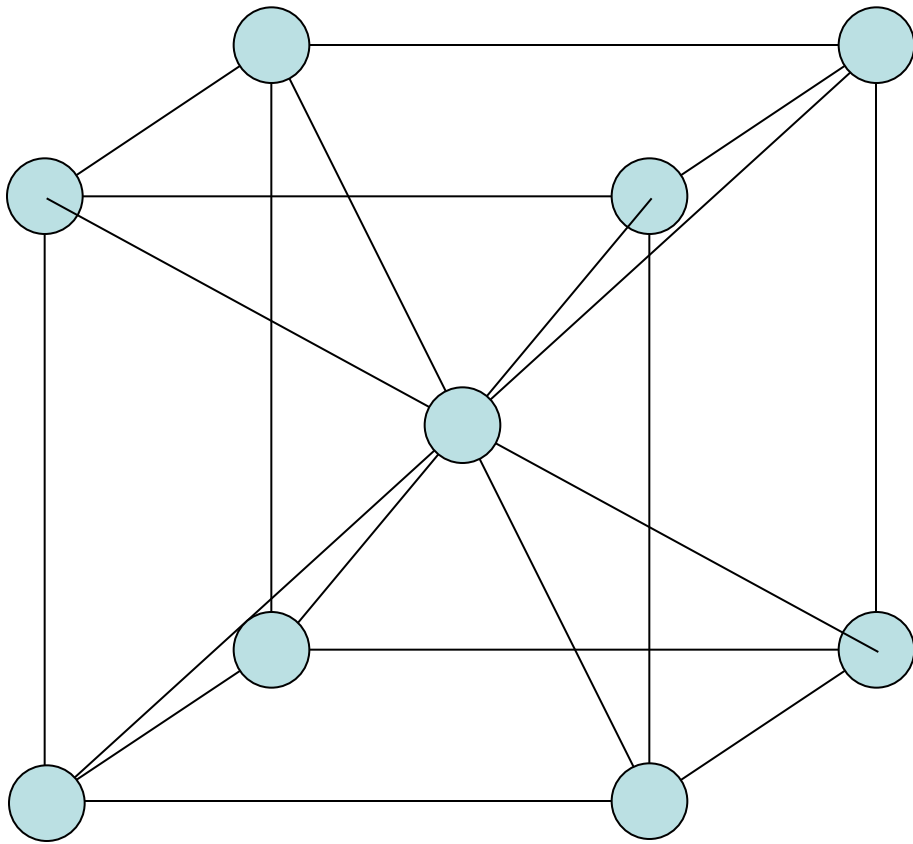
egyszerű köbös



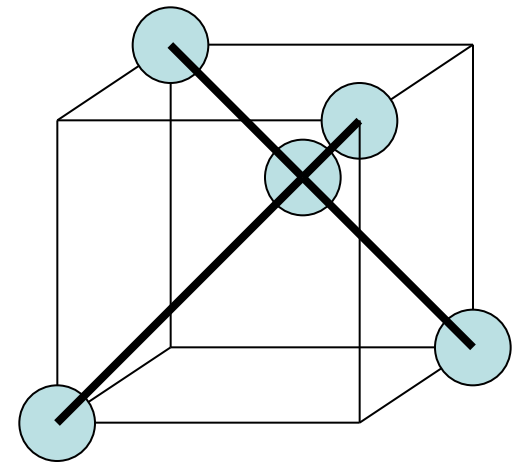
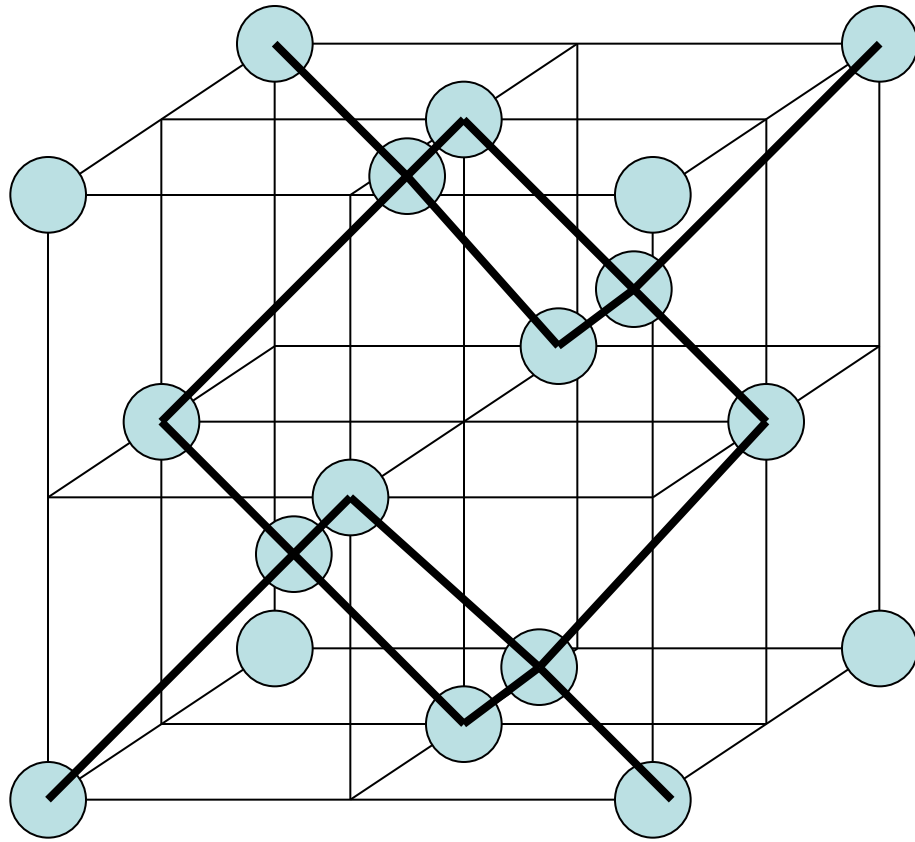
lapcentrált köbös
face centered cubic
fcc



tércentrált köbös
body centered cubic
bcc



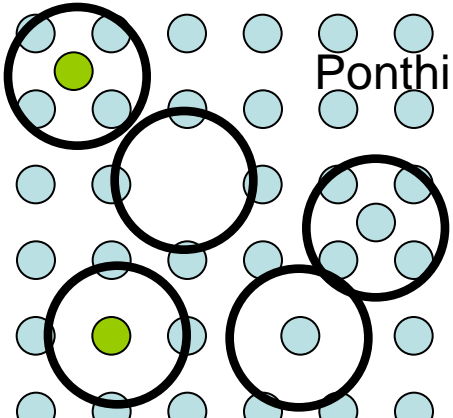
gyémántszerkezet



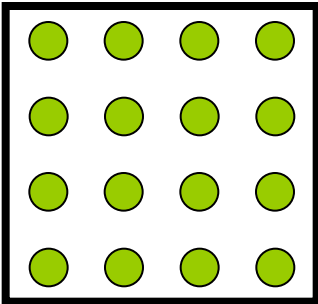
Kristályosztályok:

triklin	6 adat
monoklin	4 adat
ortorombos	3 adat
trigonális=romboéderes	2 adat
tetragonális	2 adat
hexagonális	2 adat
szabályos=holoéderes	1 adat

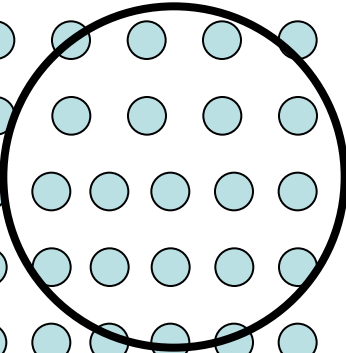
Ponthibák



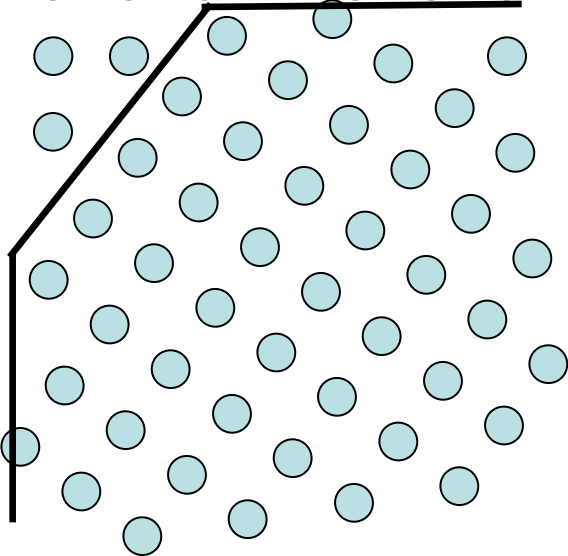
Térfogati hibák



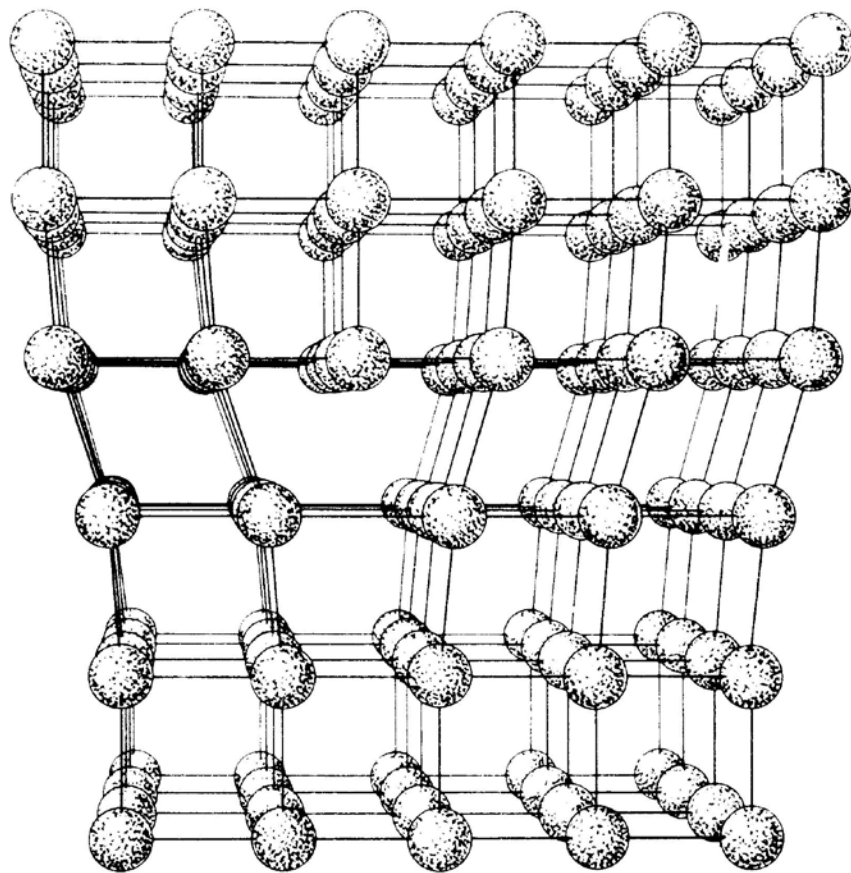
Vonalhiba, diszlokáció



Felületi hiba, szemcsehatár



Burgers vektor



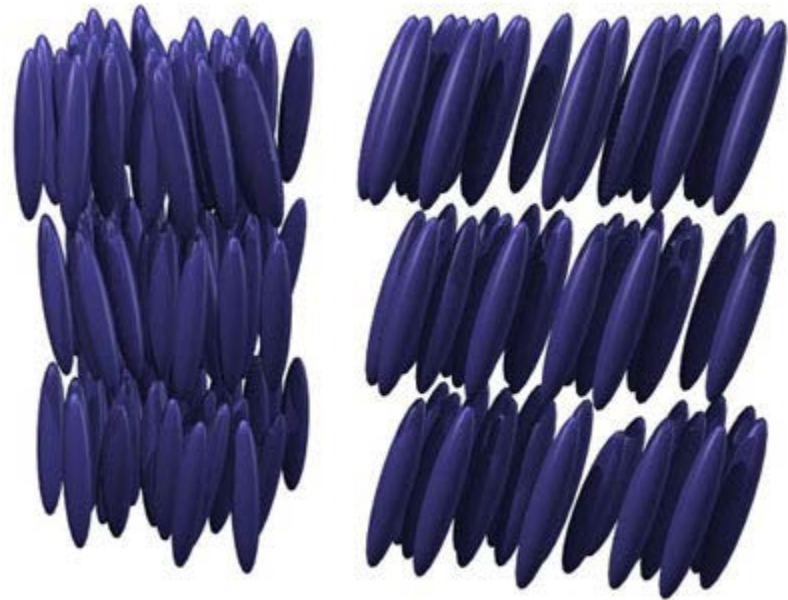
Él diszlokáció



Nematikus folyadékkristály



Folyadékkristály a Révay lexikonból

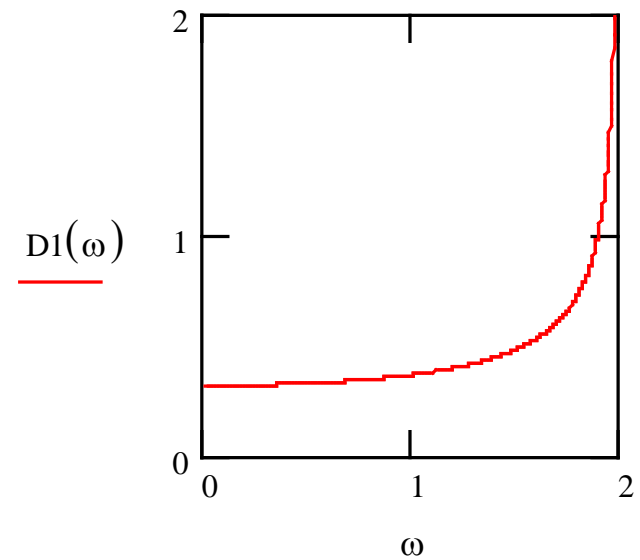
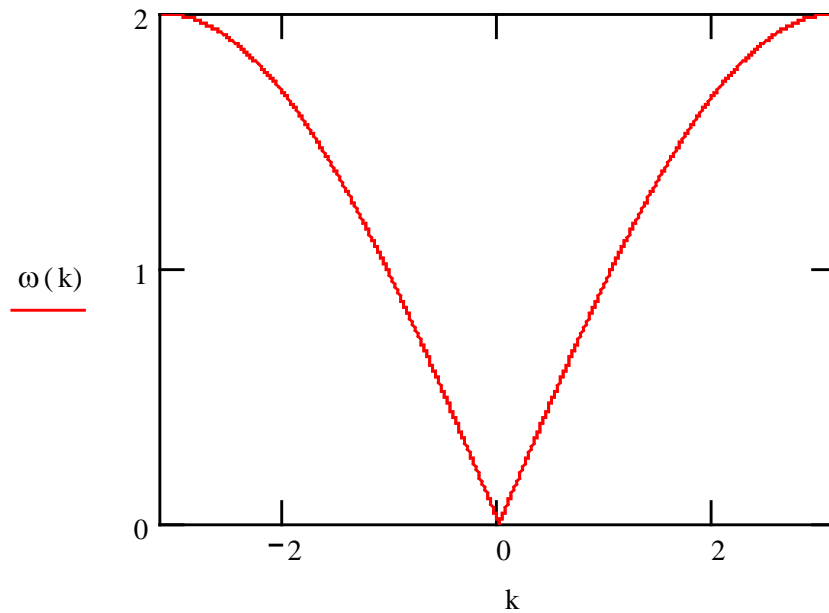


Szmetikus A és szmetikus C folyadékkristály

$$m := 1 \quad M := 2 \quad D := 1 \quad a := 1$$

$$\omega(k) := \sqrt{\frac{4 \cdot D}{m}} \cdot \left| \sin\left(\frac{k \cdot a}{2}\right) \right|$$

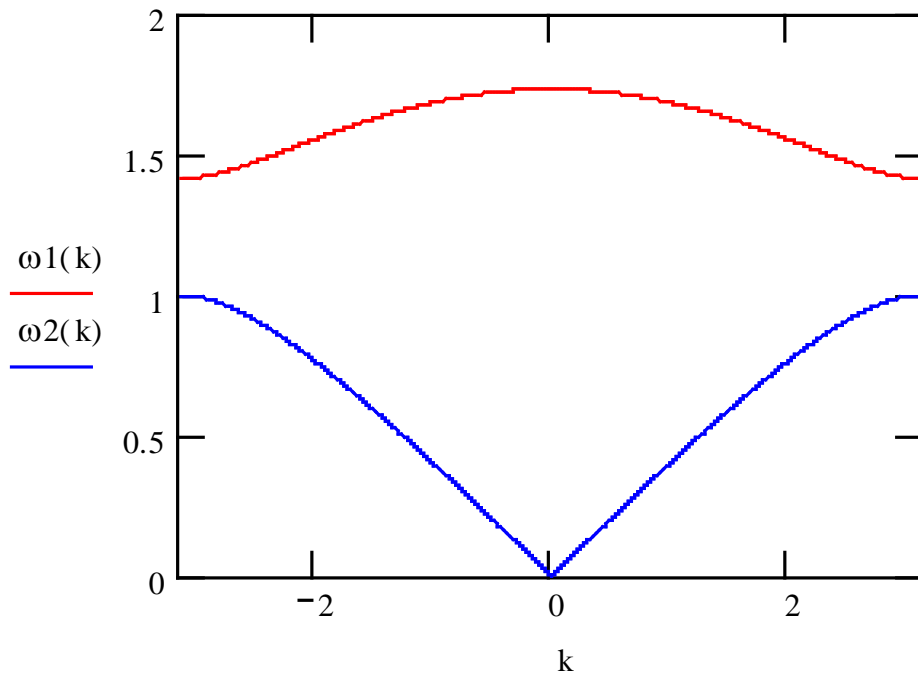
$$D1(\omega) := \frac{1}{\pi} \cdot \sqrt{\frac{m}{D}} \cdot \frac{1}{\sqrt{1 - \frac{m \cdot \omega^2}{4 \cdot D}}}$$



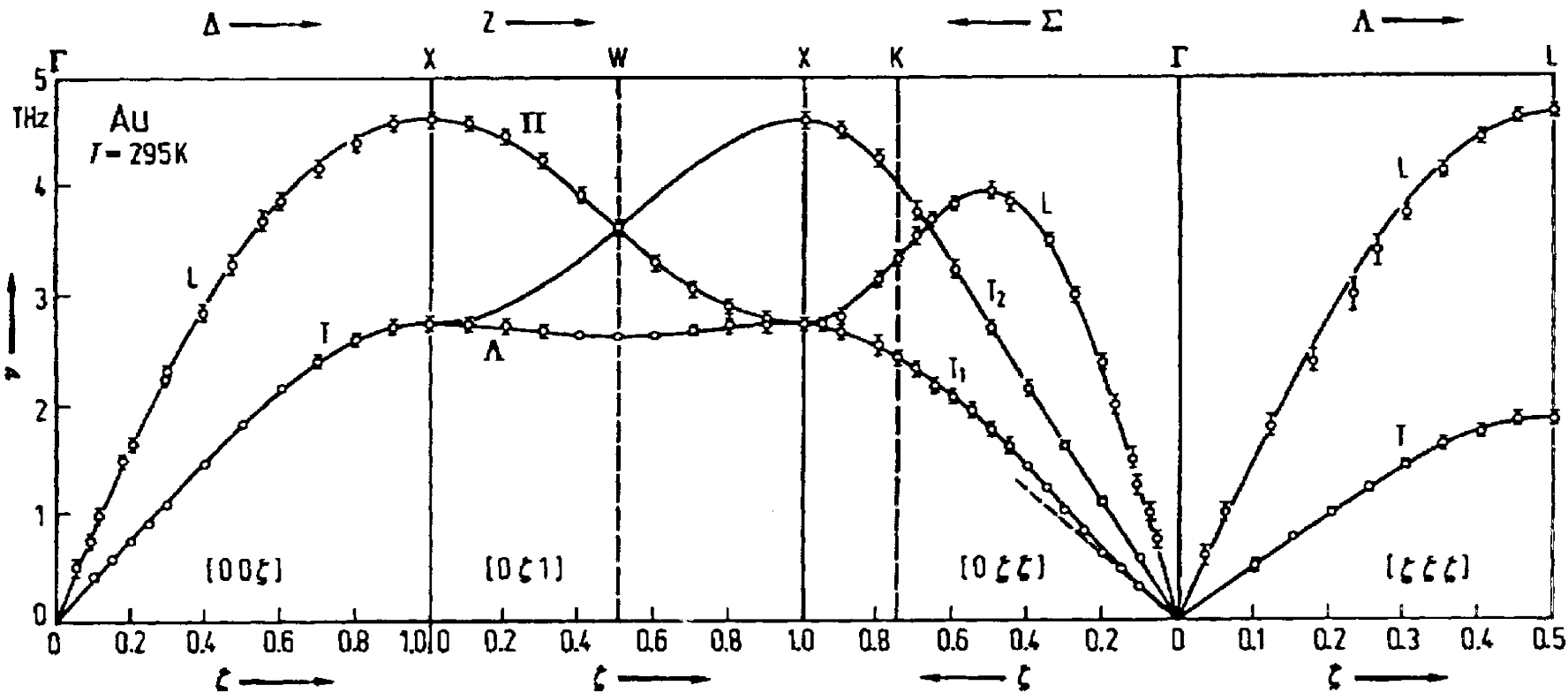
Egyatomos lineáris lánc diszperziós relációja és fononspektruma

$$\omega_1(k) := \sqrt{\frac{D}{m \cdot M} \cdot \left(m + M + \sqrt{m^2 + M^2 + 2 \cdot m \cdot M \cdot \cos(k \cdot a)} \right)}$$

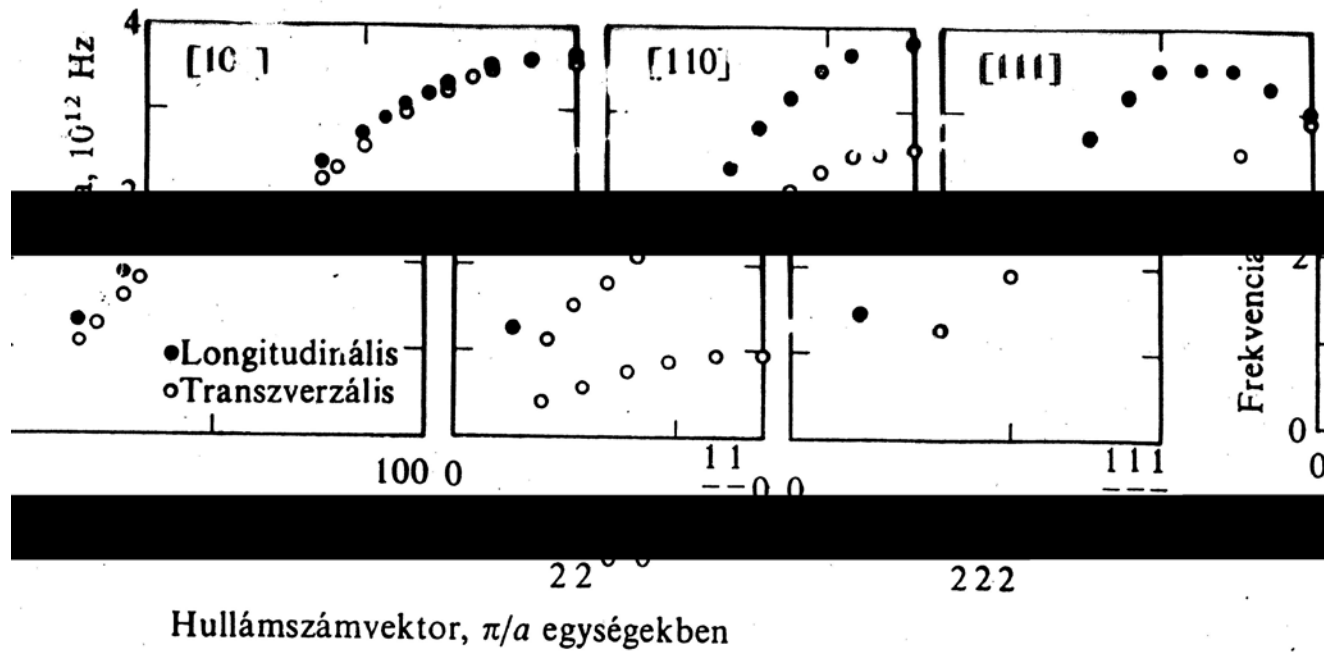
$$\omega_2(k) := \sqrt{\frac{D}{m \cdot M} \cdot \left(m + M - \sqrt{m^2 + M^2 + 2 \cdot m \cdot M \cdot \cos(k \cdot a)} \right)}$$



Kéttatomos lineáris lánc diszperziós relációja



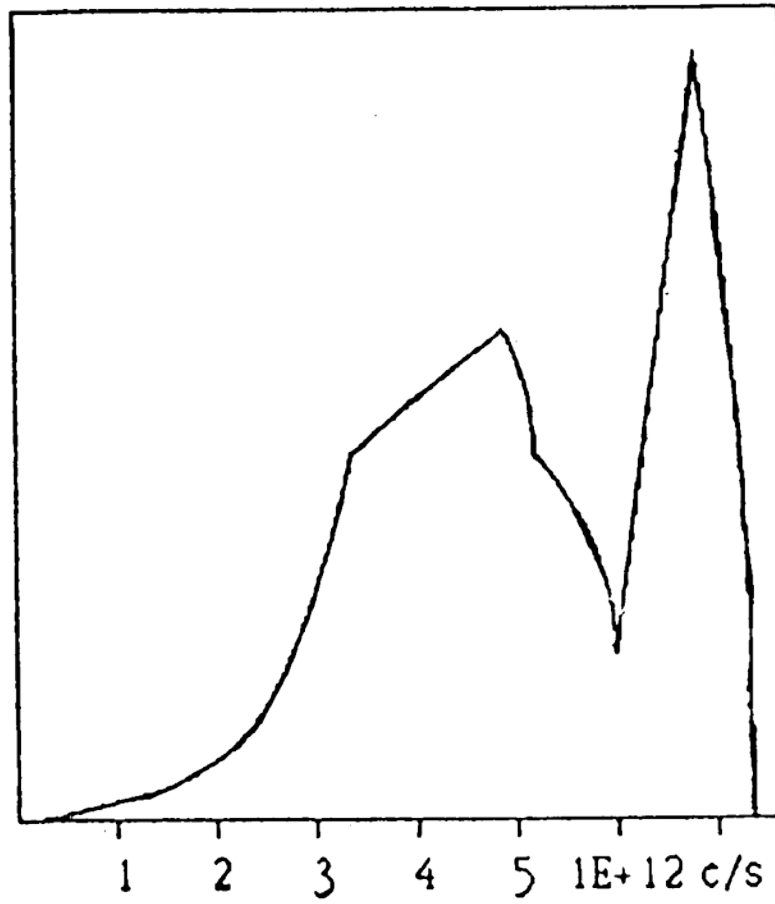
Arany diszperziós relációja a Brillouin zóna nevezetes irányában



11. ÁBRA

ly $[001]$, $[110]$ és $[111]$ irányában terjedő fononok diszperziós gör-

A nátriumkristái



A réz fononspektruma