

# Kronig-Penney Model Solution

$$-P \frac{\sin[\alpha a]}{\alpha a} + \cos[\alpha a]$$

$$-P \frac{\sin[\alpha a]}{\alpha a} + \cos(\alpha a) = \cos(ka)$$

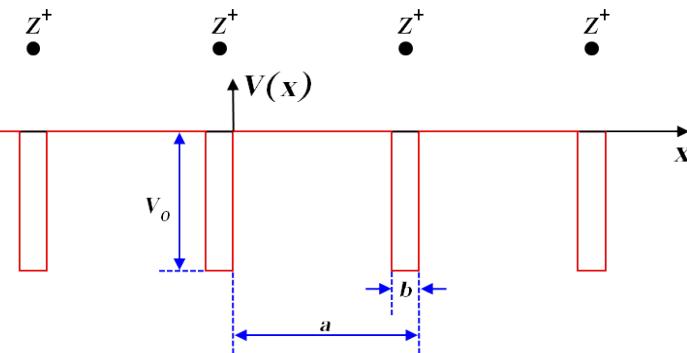
Energy bands

Band gaps



Bounds of  
 $\cos(ka)$

NO Solution possible



$$\alpha = \sqrt{\frac{2mE}{\hbar^2}} \quad \beta = \sqrt{\frac{2m(E + V_0)}{\hbar^2}} \quad P \equiv \frac{\beta^2 ba}{2}$$