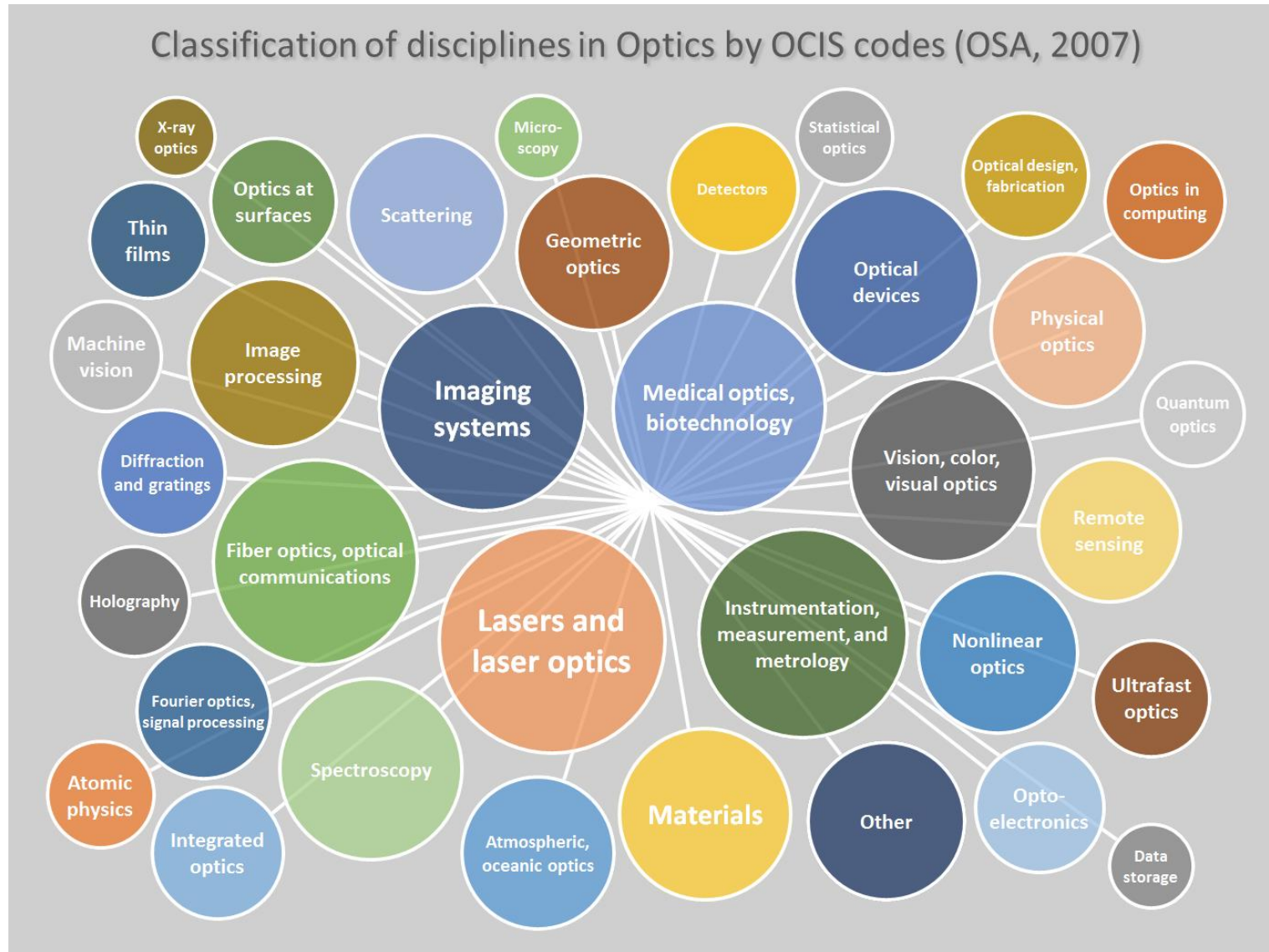


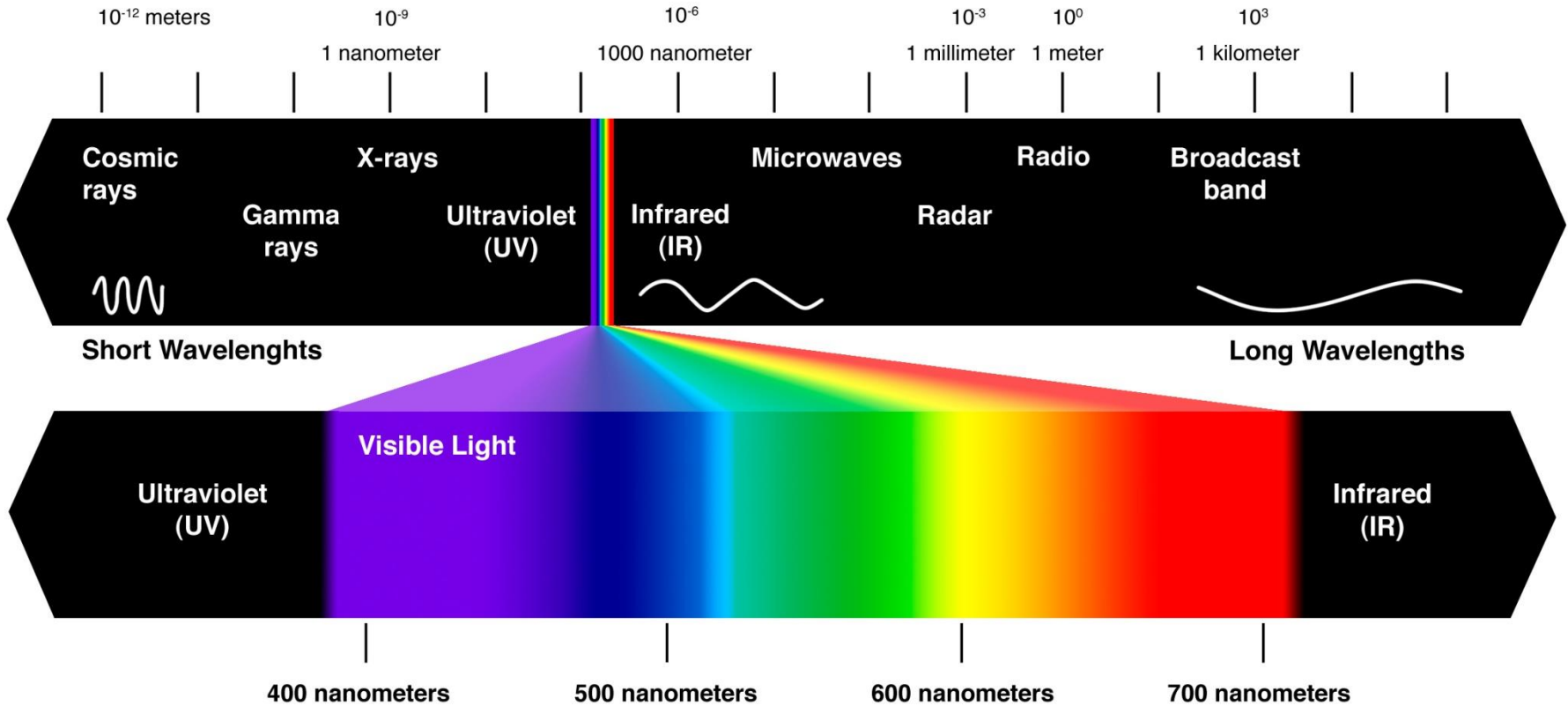


▪ Az optika tudományterületei ▪





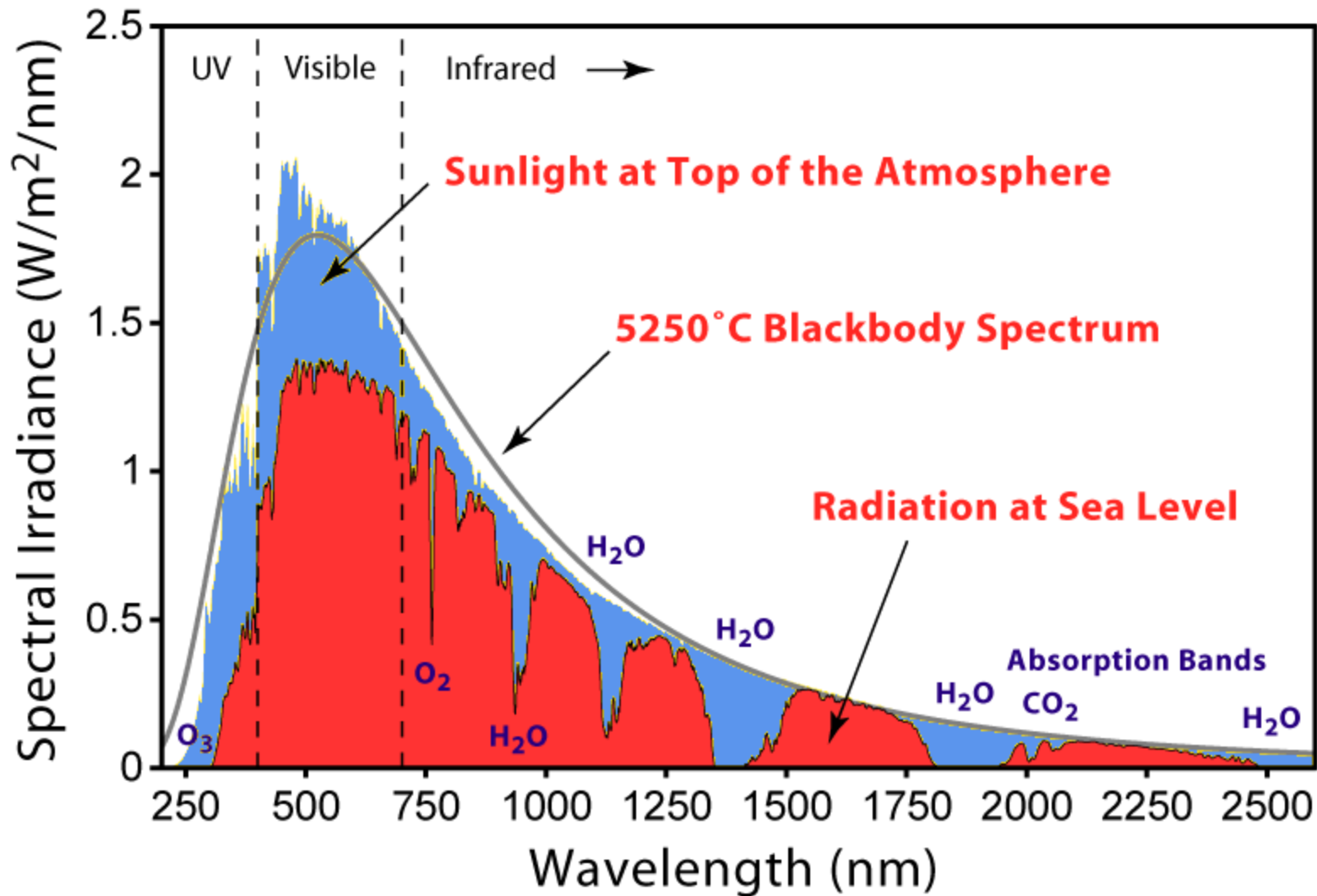
▪ Elektromágneses spektrum ▪



<http://infothread.org/Science/Physics/Electromagnetic%20Spectrum.jpg>



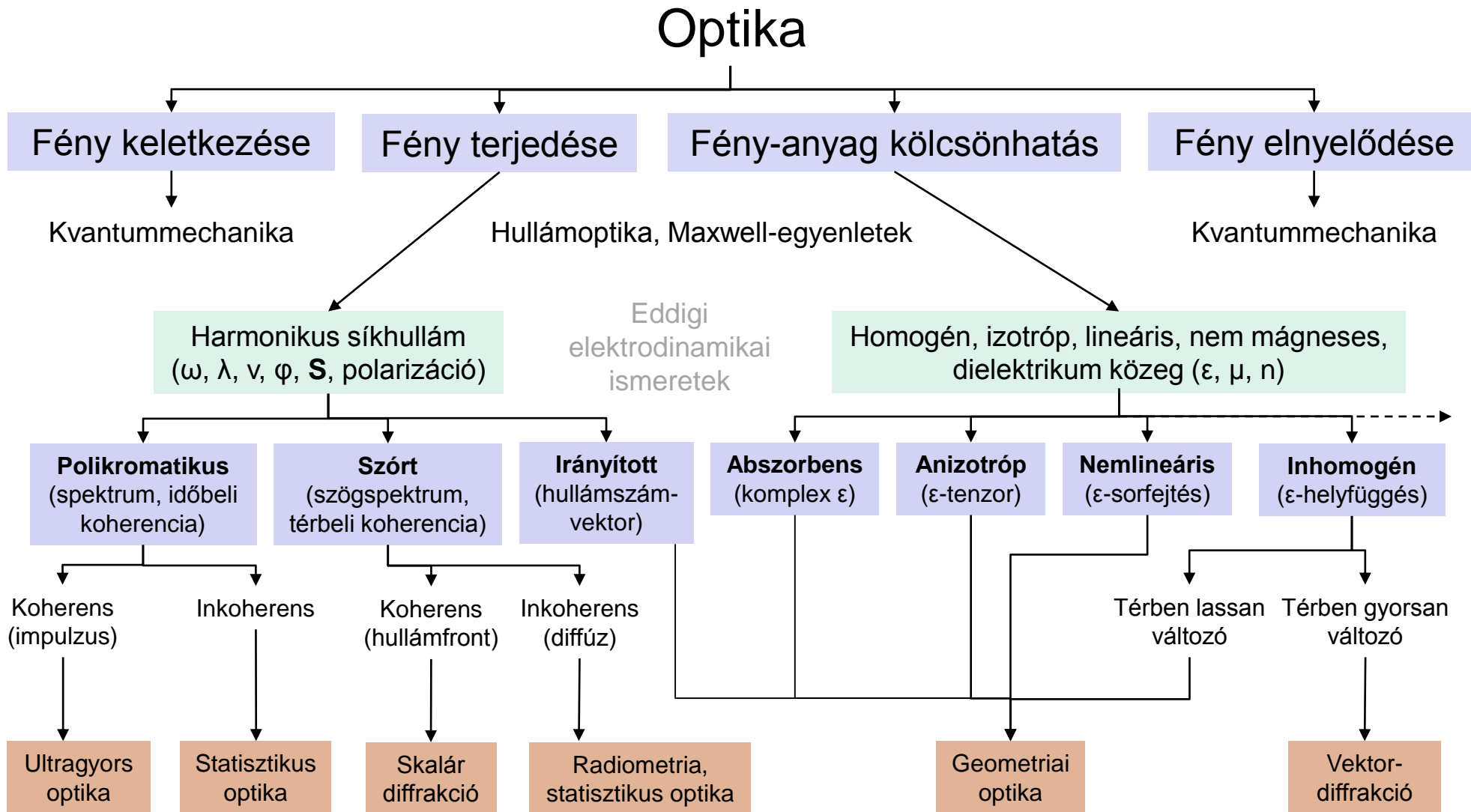
▪ Napfény sp. teljesítménysűrűsége ▪



5500 K (5250C) – a földfelszínen a közvetlen napfény, az atmoszférán kívül 5900 K
http://commons.wikimedia.org/wiki/File:Solar_Spectrum.png

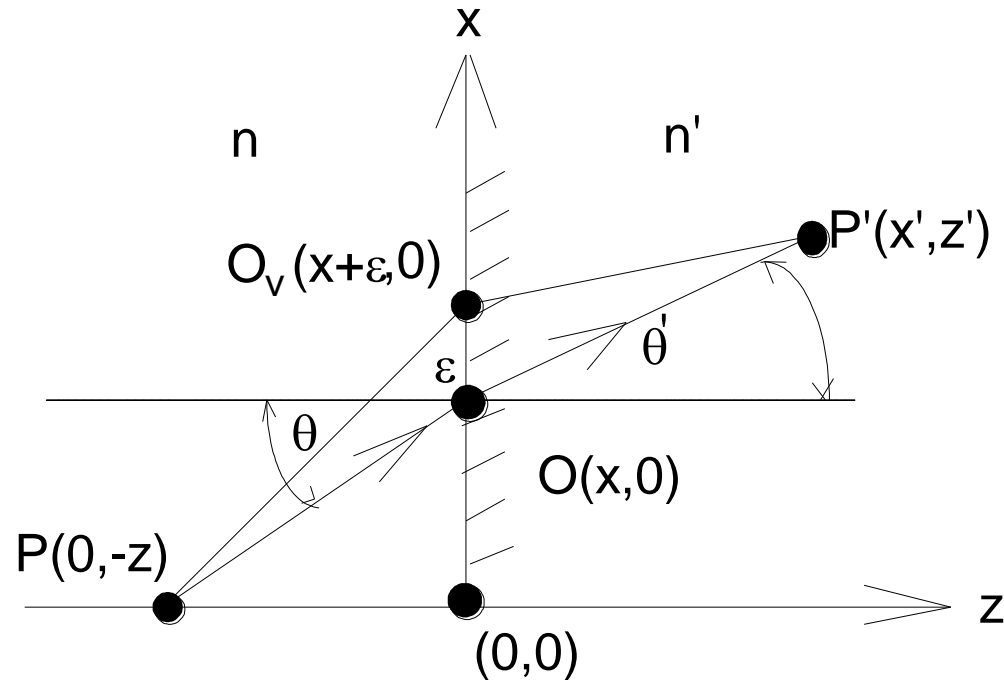


Az optikai modellek áttekintése

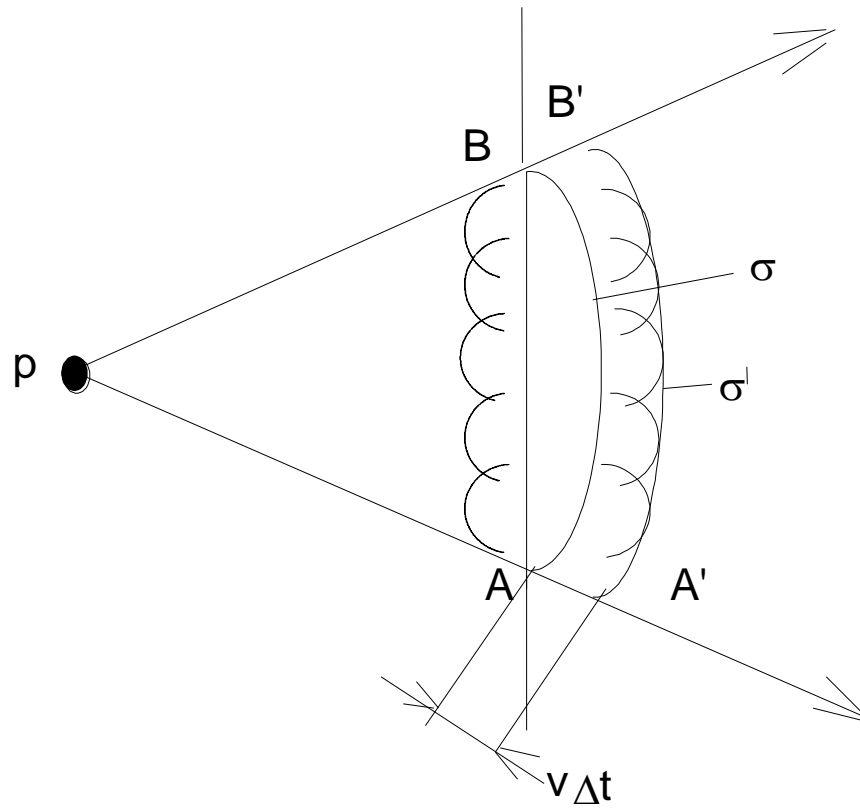




▪ Törési törv. a Fermat-elv alapján ▪

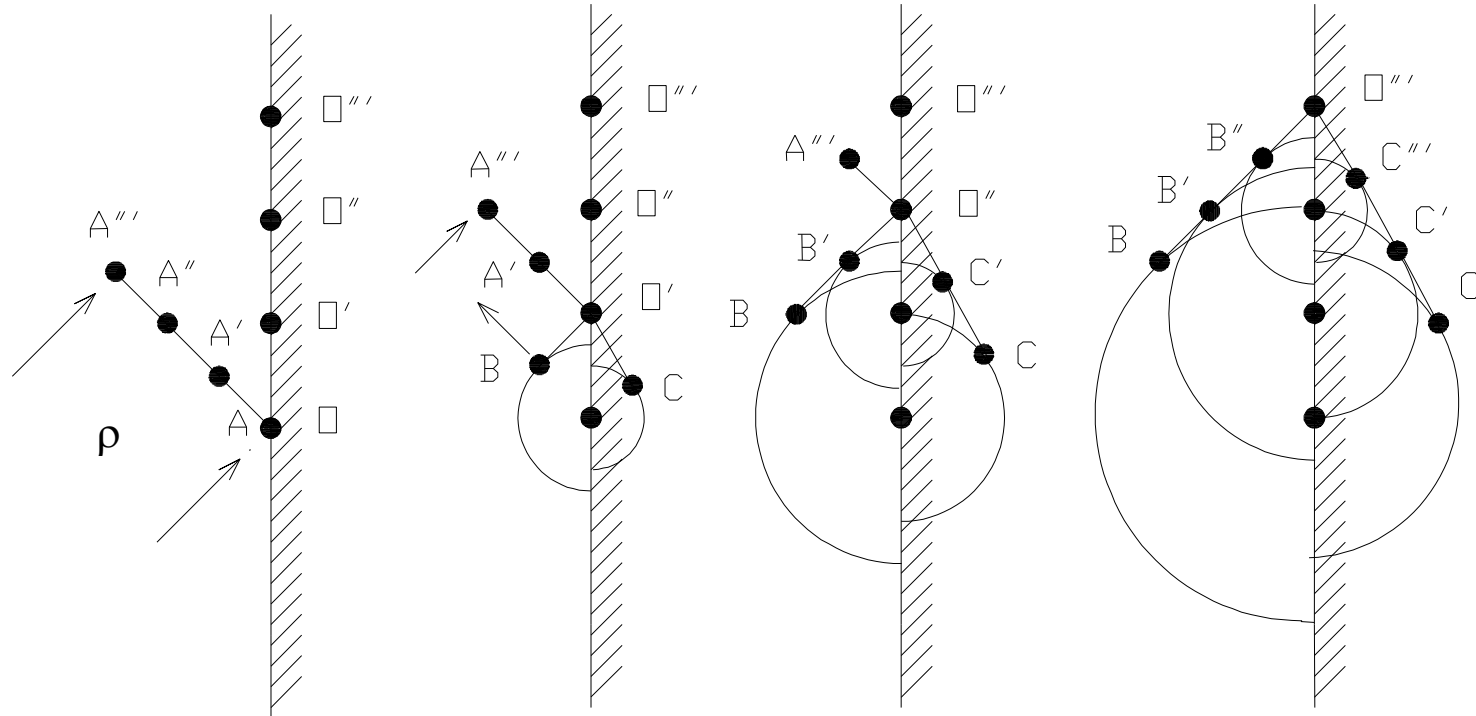


$$OPL(PO_vP') = n\sqrt{(x+\varepsilon)^2 + z^2} + n'\sqrt{(x'-x-\varepsilon)^2 + z'^2}$$



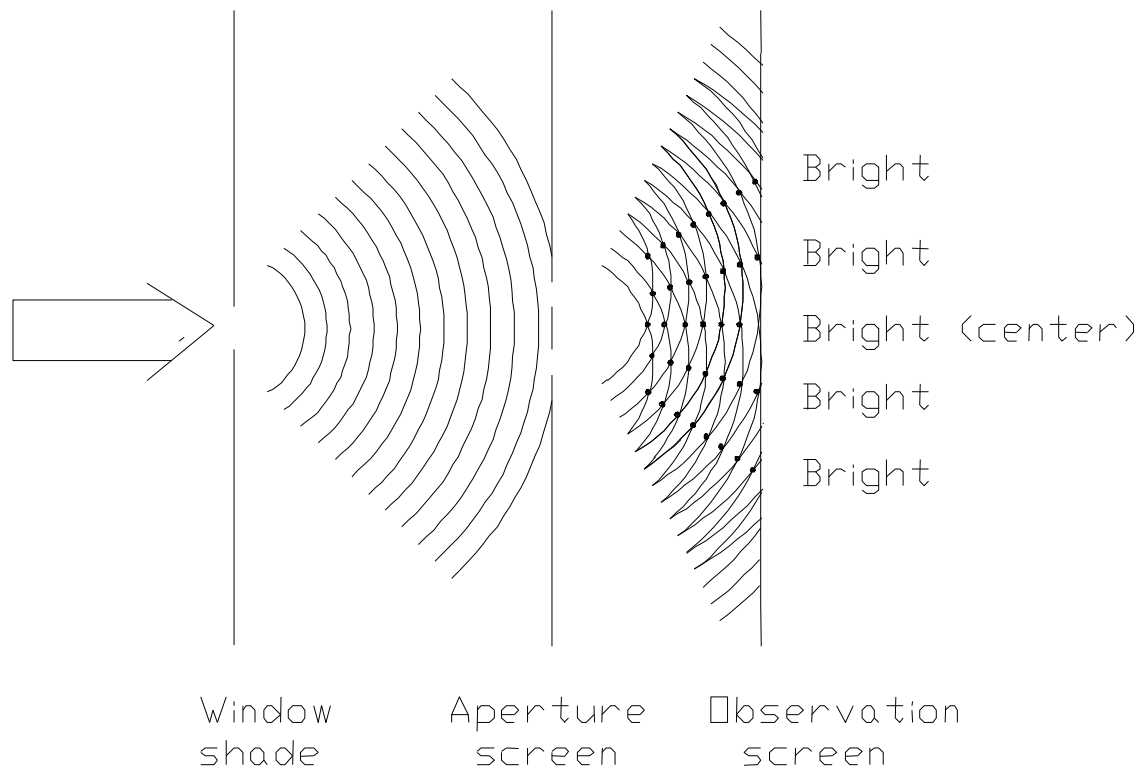


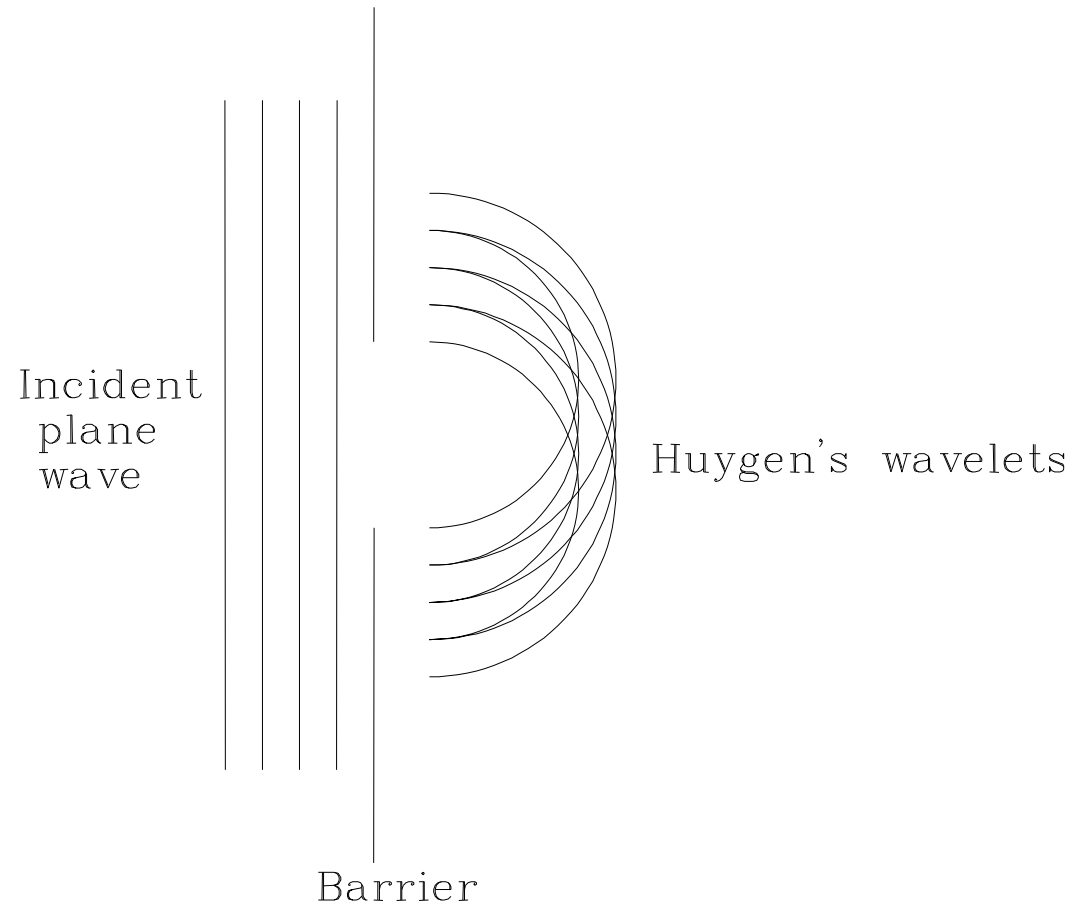
▪ Törési törv. a Huygens-elv alapján ▪





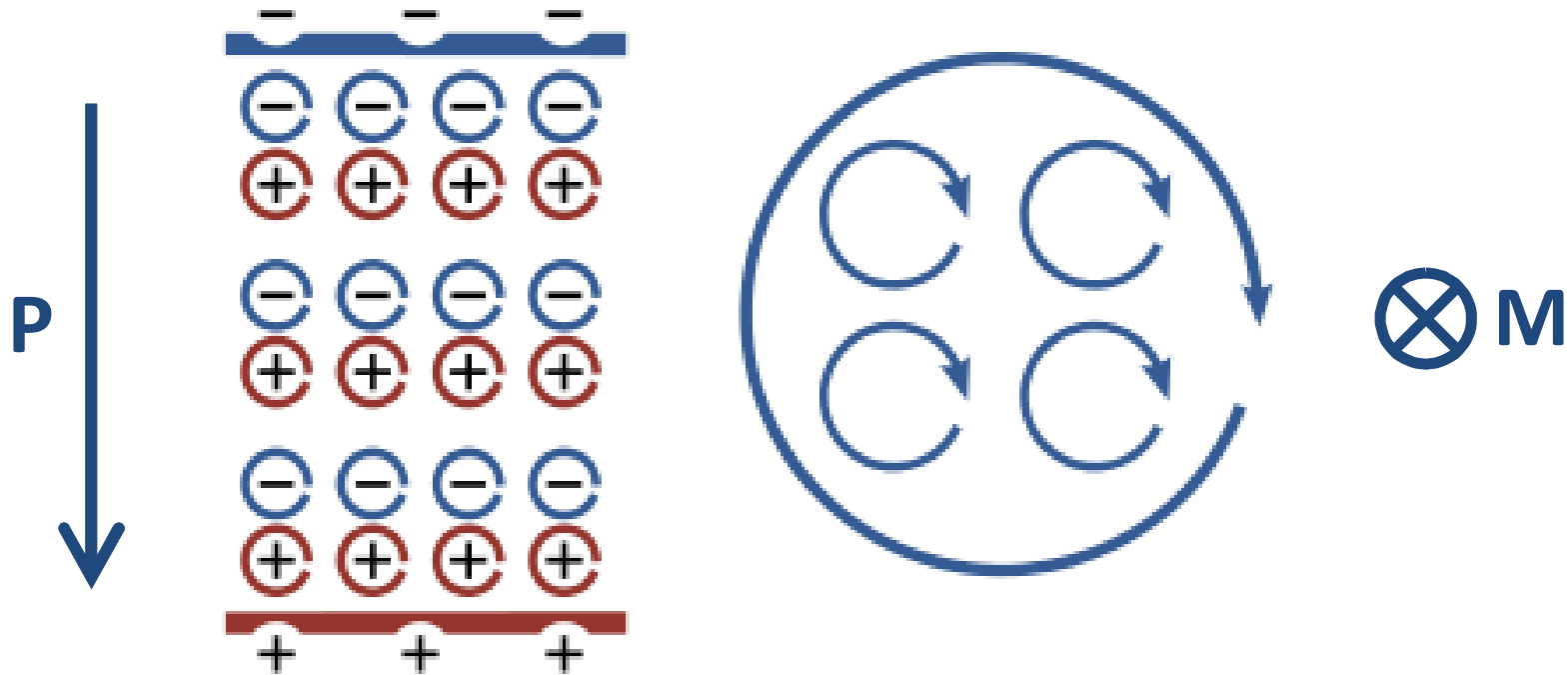
Young-féle kétréses interferencia







▪ Mikroszkópikus töltések, áramok ▪



Forrás: wikipedia



▪ Makroszkópikus Maxwell-egyenletek ▪

$$\left. \begin{aligned} \text{I.} \quad \text{rot}\mathbf{H} &= \frac{\partial\mathbf{D}}{\partial t} + \mathbf{j} \\ \text{II.} \quad \text{rot}\mathbf{E} &= -\frac{\partial\mathbf{B}}{\partial t} \\ \text{III.} \quad \text{div}\mathbf{B} &= 0 \\ \text{IV.} \quad \text{div}\mathbf{D} &= \rho \end{aligned} \right\}$$

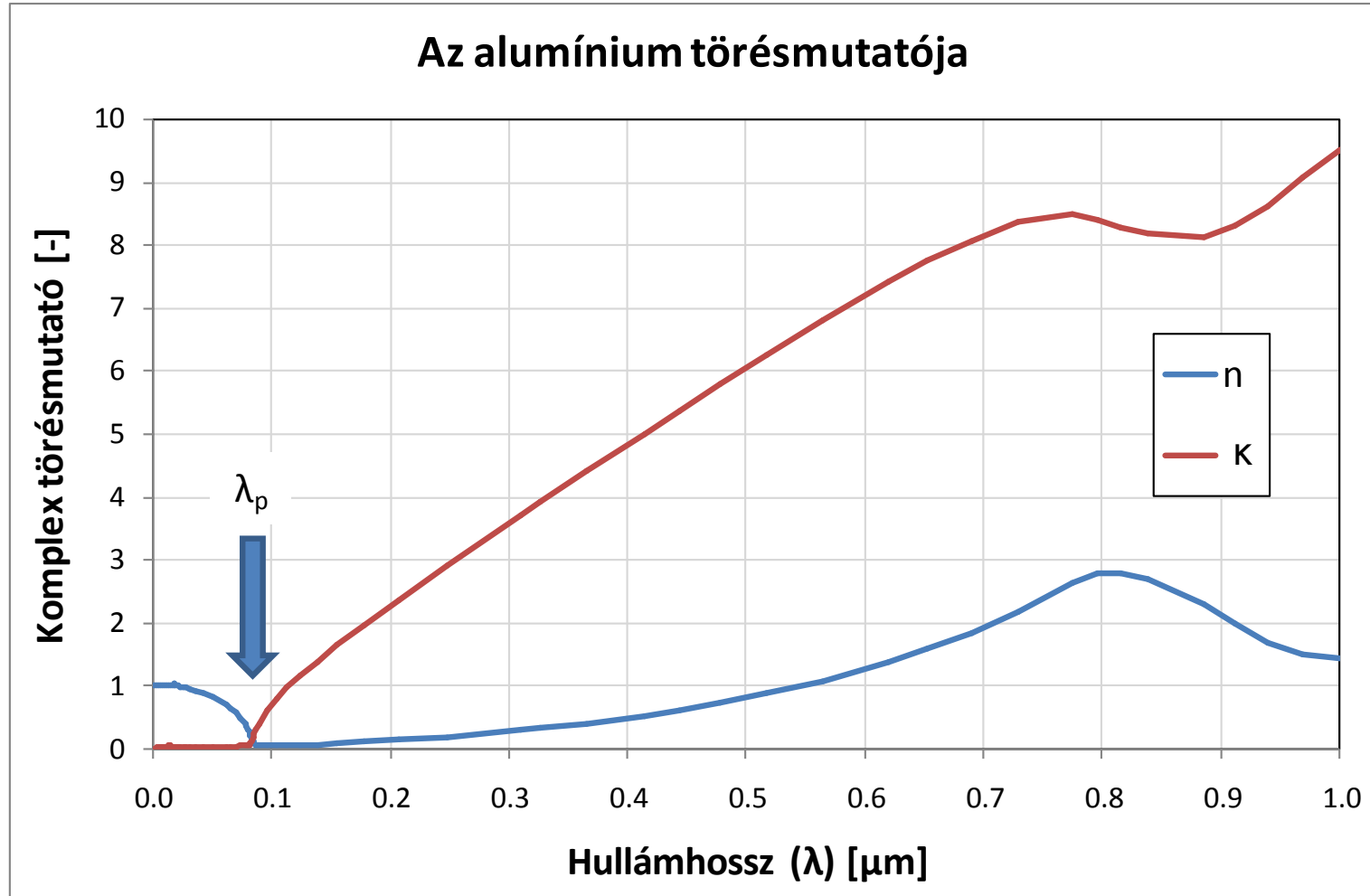
$$\mathbf{B} = \mu_0\mu_r\mathbf{H} = \mu\mathbf{H}$$

$$\mathbf{D} = \varepsilon_0\varepsilon_r\mathbf{E} = \varepsilon\mathbf{E}$$

$$\mathbf{j} = \sigma\mathbf{E}$$



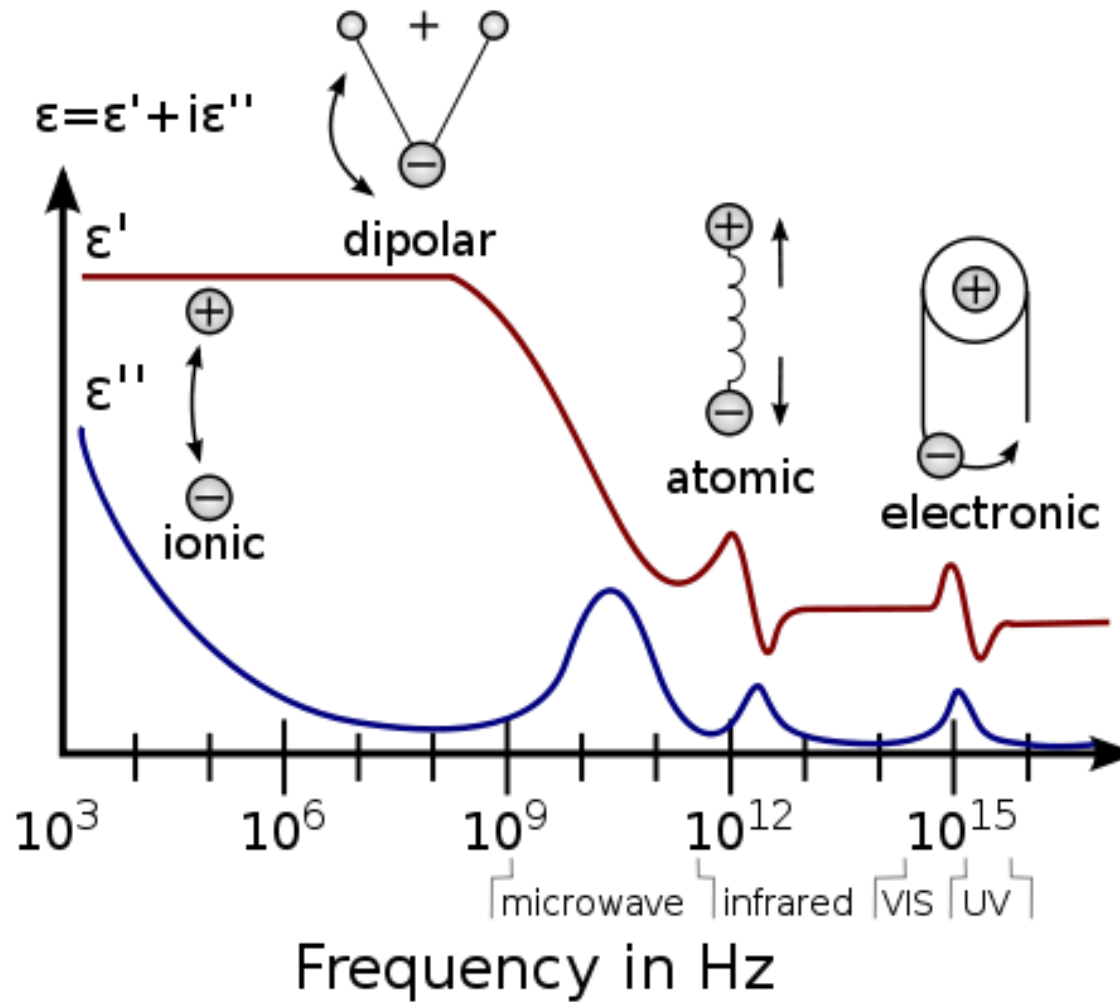
▪ Az alumínium törésmutatója ▪



(forrás: <http://refractiveindex.info>)



▪ Az ϵ frekvenciafüggése (fiktív) ▪



(forrás: <http://refractiveindex.info>)