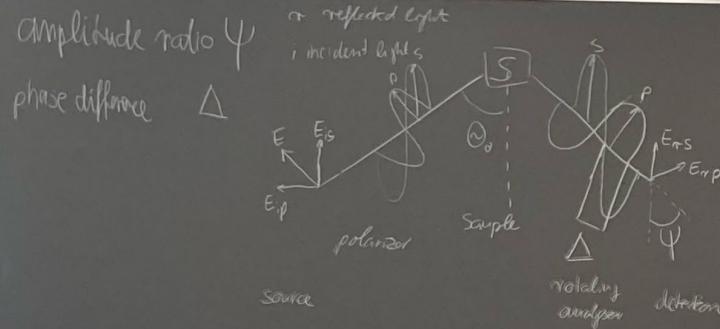


Course 15 – surface characterization - ellipsometry-



$$U = \frac{C}{n}$$

$$\text{absorption coefficient } \alpha = \frac{4\pi k}{\lambda}$$

Complex refractive index

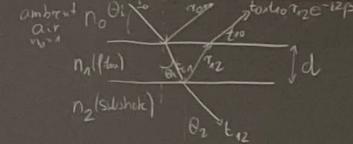
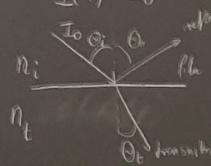
$$n^* = n + ik$$

extinction coefficient

\equiv loss of the
wave energy

$$n(\text{air}) \approx 1$$

$$\text{Beer's law } I(x) = I_0 e^{-\alpha x}$$



$$\text{film phase thickness } \beta = 2\pi \left(\frac{d}{\lambda} \right) n_f \cos \theta_i$$

$$\Delta \equiv \delta_i - \delta_t$$

$$\text{reflectance ratio } S = f_{\text{air}}(\Psi) e^{\Delta} = f(\lambda, \theta_i, d, n^*)$$