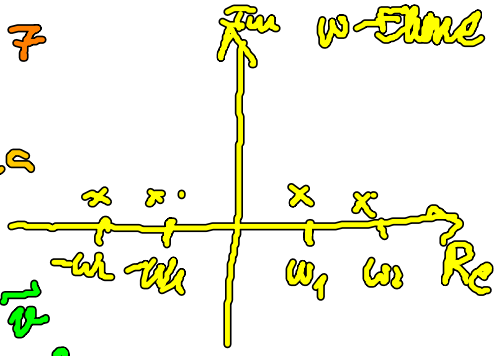
# Vorlesung Theoretische Optik, 26.Nov.2007

## 3.3 Dispersion durch ein Elektronengas




Dipolmoment $\vec{p} = -e \cdot \vec{r} \Rightarrow \dot{\vec{p}} = -e \cdot \vec{v}$

Polarisation = Dipoldichte $\vec{P} = \vec{p} \cdot n \Rightarrow \dot{\vec{P}} = -e \cdot \vec{v} n = \vec{j}$

Absdm. 3.2 $\tilde{\varepsilon}(\omega) = 1 + \frac{Ne^2}{\varepsilon_0 m} \sum_{j=1}^{Z} \frac{f_j}{\omega_j^2 - \omega^2 + i\omega\gamma_j}$

$dz = R\,d\varphi$

Polstellen $\omega_j^{Pol} = \pm\omega_j \sqrt{1 - \left(\frac{\gamma_j}{2\omega_j}\right)^2} + i\frac{1}{2}\gamma_j$

$$f = \int \ldots = \int \ldots = \int \ldots + \frac{1}{2}\int \ldots = -?\int + \frac{1}{2} f \Rightarrow \frac{1}{2} I = -?\int$$

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