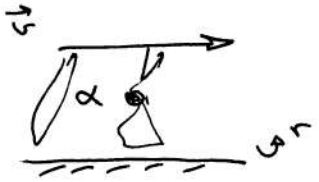
ICFO
1-ix-2022

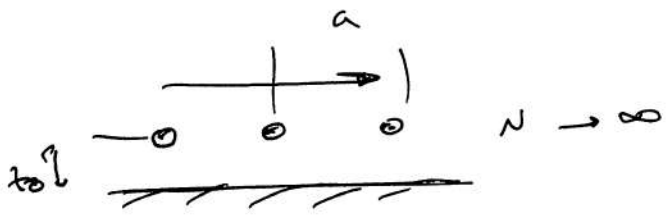


$$\Gamma^{EELS} = \Gamma^{EELS}_{dip} + \Gamma^{EELS}_{w.f} + \Gamma^{EELS}_{inter} \quad (1)$$

→ full expression

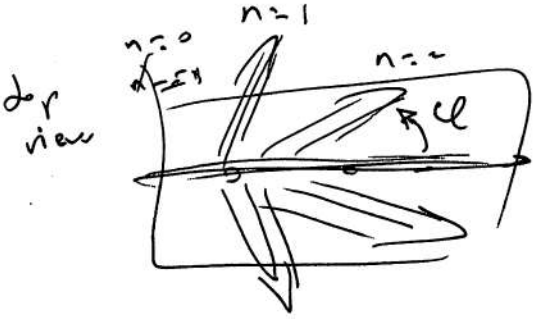
→ plasmon-pole (P-P)

→ asymptotic analytical expression



bulk response

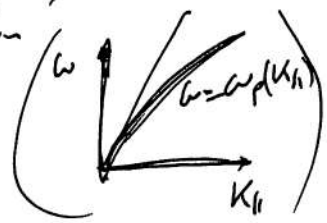
surface Smith-Purcell



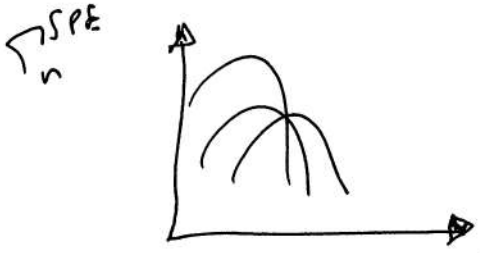
$$\Gamma^{EELS} = \Gamma_0 + \Gamma_1 + \sum_n \Gamma^{SPE}_n$$

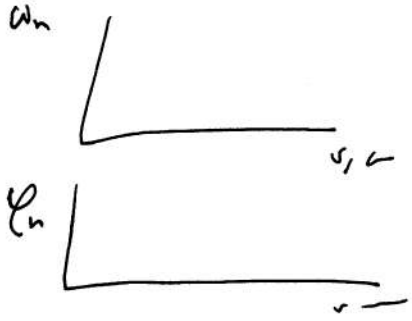
$$\Gamma^{SPE} = \sum_n \Gamma^{SPE}_n$$

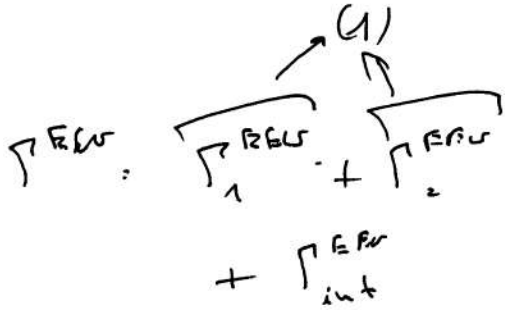
surface-polariton excitation

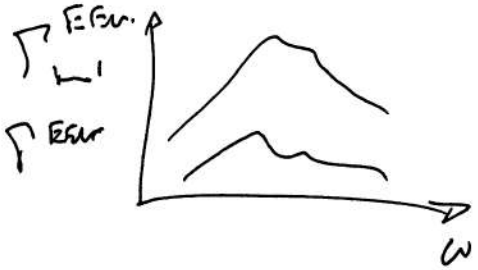


↓ analytical form (P-P) asymptotics



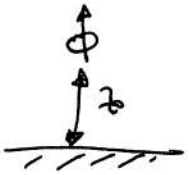


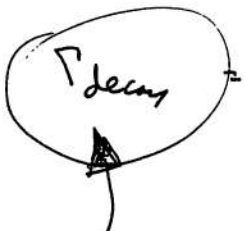




(#182)

$$\left(\mathrm{Im}\left\{\frac{-1}{\alpha}\right\} = \frac{2k^3}{3}\right) \rightarrow \qquad \alpha = \frac{\cdots}{\omega_0 - \omega - i\,\cdots}$$





see #53
#102

$\Gamma_{dec}^{rad} + \Gamma_{dec}^{SPE}$

↳ asymptotic

$\lambda_p \ll \lambda_0 \rightarrow \Gamma^{SPE}$

$z_0 \ll$

Γ^{rad}

z_0, $\mathrm{Re}\{\alpha\}$, $\mathrm{Im}\{\alpha\}$.

$\mathrm{Im}\left\{\frac{-1}{\alpha}\right\} = \frac{2k^3}{3} \rightarrow \alpha$