## ABSORÇÃO

$$egin{aligned} \sigma(\omega_{
m f}) &= -rac{8e\omega_{
m f}}{arepsilon_0 c} \int_0^{T_0} dt \, Im \, \{\langle \Psi_0; t | z | 1; t 
angle \langle \Psi_0; t | 1; t 
angle \} \cos(\omega_{
m f} t) - \ &rac{8e\omega_{
m f}}{arepsilon_0 c} \int_0^{T_0} dt \, Im \, \{\langle \Psi_0; t | z | 2; t 
angle \langle \Psi_0; t | 2; t 
angle \} \cos(\omega_{
m f} t) \ & \langle \Psi_0; t | 1; t 
angle &= \int_{-\infty}^{+\infty} \, dz \, \Psi_0^*(z,t) \, \psi_1(z) \, e^{-iE_1 t/\hbar} \ & \langle \Psi_0; t | z | 1; t 
angle &= \int_{-\infty}^{+\infty} \, dz \, \Psi_0^*(z,t) \, z \, \psi_1(z) \, e^{-iE_1 t/\hbar} \ & \langle \Psi_0; t | z | 2; t 
angle &= \int_{-\infty}^{+\infty} \, dz \, \Psi_0^*(z,t) \, z \, \psi_2(z) \, e^{-iE_1 t/\hbar} \ & \langle \Psi_0; t | z | 2; t 
angle &= \int_{-\infty}^{+\infty} \, dz \, \Psi_0^*(z,t) \, z \, \psi_2(z) \, e^{-iE_1 t/\hbar} \end{aligned}$$