

HW #5

Due Nov. 9 (Thursday) in class

1. Problem 10.8 in Chuang.

Note:

Find the gain for TE polarization.

The square of the matrix element is $|\hat{e} \cdot \vec{p}|^2 = M_b^2 = (m_0/6)E_p$. Find the value of E_p from Appendix K, Table K-2)

Please use your favorite math software package to plot the gain spectrum for

(a) $\Delta F = E_g + (E_{e1} - E_{h1}) + 0.05 \text{ eV}$

(b) $\Delta F = E_g + (E_{e1} - E_{h1}) + 0.3 \text{ eV}$

2. Problem 10.9 in Chuang (use $m_e^* = 0.0665m_0$ and $m_h^* = 0.34m_0$)