Laser Physics 464 — Homework 3

Due Wednesday, October 11, 2023

"Pot pourri" of parameters

You are given the absorption cross section of a medium (σ) and the density. Find all other parameters (spontaneous relaxation rate T_1, saturation energy density, saturation intensity, Rabi frequency coefficient, dipole moment, absorption coefficient, *etc* ... (in case I forgot some), At each step check the dimensions.
Numerical example: $\sigma = 5 \cdot 10^{-16}$ cm^2; $N = 5 \cdot 10^{18}$ cm^{-3}; $\lambda = 800$ nm.