

An important correction in Lecture 15: intensity of light I is proportional to the *square* of the electric-field amplitude E . So the probability of transition $n \leftarrow 0$ is proportional to the square of the transition dipole moment and is linearly proportional to the intensity:

$$P_{n \leftarrow 0} \propto \left| \int \Psi_n^* \hat{z} \Psi_0 d\tau \right|^2 E^2 \propto \left| \int \Psi_n^* \hat{z} \Psi_0 d\tau \right|^2 I. \quad (1)$$

In Lecture 15, intensity and field amplitude were used interchangeably, which is incorrect. Field amplitude is to wave function as intensity is to probability density.