$$1 - \int_a^b \left[E(x,t)\right]^2 \, dx = 1 - \int_a^b \left[P(x,t)E(x,t) + H(x,t)E(x,t)\right] \, dx$$

$$= 1 - \int_a^b \left[(1-J)\, E(x,t)\right] \, dx = 1 - \int_a^b \left[\frac{1}{\mu_r \mu_0} e^{-\mu' x}\right] \, dx$$

$$= 1 - \left[\frac{1}{\mu_r \mu_0} \int_a^b e^{-\mu' x} \, dx\right]$$

For

$$V = \frac{1}{2} m v^2$$

$$\mu' = \frac{\mu}{\mu_r \mu_0}$$

$$E = -\frac{\hbar^2}{2m} \nabla^2$$

$$\Rightarrow 1 - \int_a^b \left[L(x,t)L(x,t)\right] \, dx \approx 0.5$$

Error Corrections

- Enclosed the expression $P(x,t)E(x,t)+H(x,t)E(x,t)$ in the first equation with brackets for clarity.
- Added clarification braces around $1 - J$ in the third equation to ensure correct grouping.
- Utilized black text for the error correction section as requested.