70001 Tutorial 5

1. Compute the differential radiance for light transport through a volume of length 1m with the following properties: $\sigma_a = 0.2\ m^{-1}$, $\sigma_s = 0.3\ m^{-1}$, and uniform isotropic phase function. Assume unit incoming radiance.

2. Given a layered scattering medium with two layers and individual layer reflectance and transmittance parameters as follows: $R_1 = 0.1$, $T_1 = 0.7$, $R_2 = 0.4$, & $T_2 = 0.6$. Compute the total transmittance T_{12} due to the two layers according to the Kubelka-Munk model.

3. Given a homogeneous isotropic participating media and following parameters of absorption cross-section $\sigma_a = 0.1\ m^{-1}$, and out-scattering coefficient $\sigma_s = 0.2\ m^{-1}$, compute the transport coefficient T_r for energy transfer along a ray of distance 0.5m through the volume.