

Lecture 12: Light – Review Questions

- Describe the terms in the rendering equation. Draw a diagram labeling p , p' , and p'' to illustrate your description.

$$i(p, p') = g(p, p') \left(\epsilon(p, p') + \int \rho(p, p', p'') i(p', p'') dp'' \right)$$

- How do we get intensity at p ?
- How do we get color at p ? (Hint: the rendering equation applies only for a single wavelength, i.e., parameters i , ϵ and ρ depend on wavelength.)
- Describe the terms in the following equation, which represents the rendering model used in OpenGL:

$$I = k_a L_a + k_d (l \bullet n) \frac{L_d}{(a + br + cr^2)} + k_s (r \bullet v)^\alpha \frac{L_s}{(a + br + cr^2)}$$

- Which parameters in this equation are properties of the surface material? Which are properties of the light sources?
- How is dependence on the wavelength / frequency of light captured in this equation?
- How can the rendering equation be simplified to represent this rendering model?
- Describe some of the physically realistic effects we give up by making this simplification (vs. using the complete rendering model).