BSSRDF Formulas

January 14, 2007

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σ'_s	*Reduced* Scattering Coefficient: on the table
σ_a	Absorption Coefficient: on the table
α'	Reduced Albedo
σ_{tr}	Effective transport extinction coefficient
d_r	Distance to the real light source
d_v	Distance to the virtual light source
$r = \|\|x_o - x_i\|\|$	Distance from x_o to the point of illumination
z_r	Distance from the real dipole light to the surface
z_v	Distance from the virtual dipole light to the surface
F_{dr}	Diffuse Fresnel term
η	Relative index of refraction: on the table
l_u	Mean free path

Reduced Scattering Coefficient: could be obtained from the table

$$\sigma'_s = (1 - g)\sigma_s \tag{1}$$

??? Coefficient

$$\sigma'_t = \sigma'_s + \sigma_a \tag{2}$$

Mean Free Path

$$l_u = \frac{1}{\sigma'_t} \tag{3}$$

Now, for the big formula

$$\frac{dM_o(x_o)}{d\Phi_i(x_i)\alpha'} = \frac{1}{4\pi}\left\{ z_r(\sigma_{tr} + \frac{1}{d_r})\frac{e^{-\sigma_{t_r} d_r}}{d_r^2} + z_v(\sigma_{tr} + \frac{1}{d_v})\frac{e^{-\sigma_{t_r} d_v}}{d_v^2} \right\} \tag{4}$$

$$\alpha' = \frac{\sigma_s'}{\sigma_t'} \tag{5}$$

$$\sigma_{tr} = \sqrt{3\sigma_a\sigma_t'} \tag{6}$$

$$d_r = \sqrt{r^2 + z_r^2} \tag{7}$$

$$d_v = \sqrt{r^2 + z_v^2} \tag{8}$$

$$r = ||x_o - x_i|| \tag{9}$$

$$z_r = l_u \tag{10}$$

$$z_v = l_u(1 + \frac{4}{3}A) \tag{11}$$

$$A = \frac{1 + F_{dr}}{1 - F_{dr}} \tag{12}$$

$$F_{dr} = -\frac{1.440}{\eta^2} + \frac{0.710}{\eta} + 0.668 + 0.0636\eta \tag{13}$$