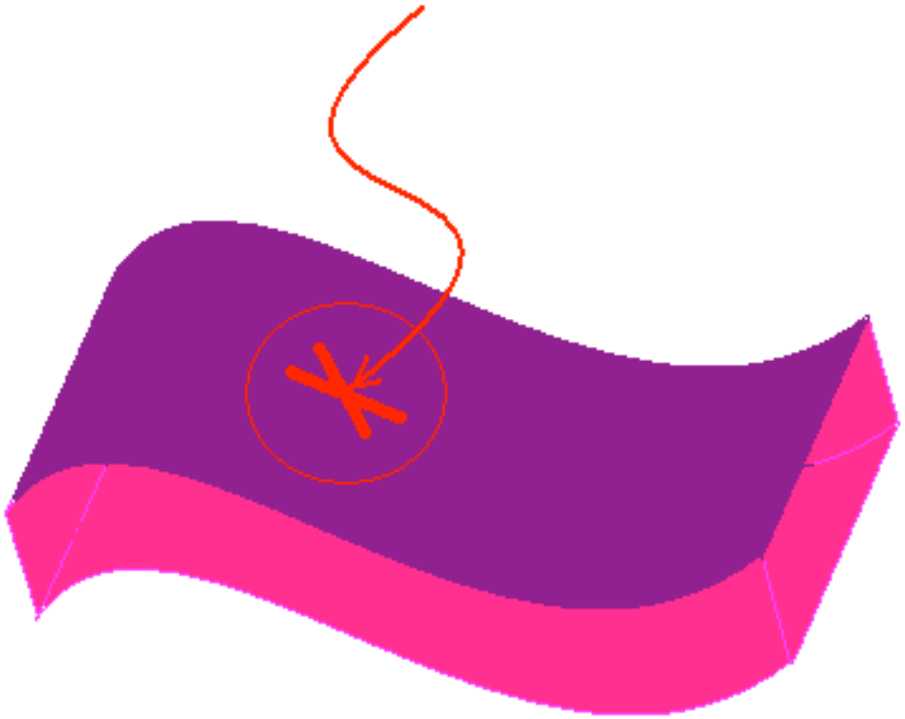
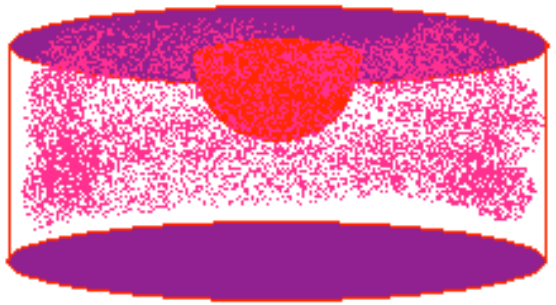
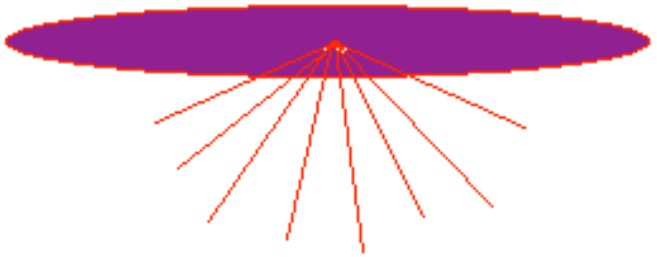
Diffuse Optical Imaging: DOI

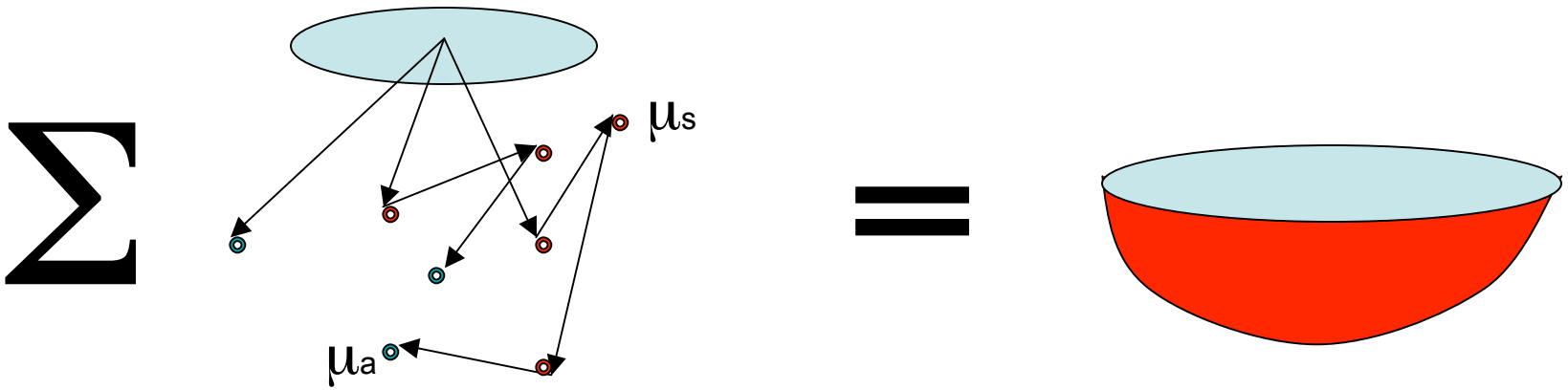
What Happens?







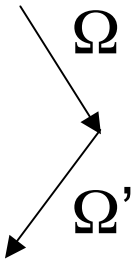
What Really Happens?



$\mu_a + \mu_s = \mu_t$

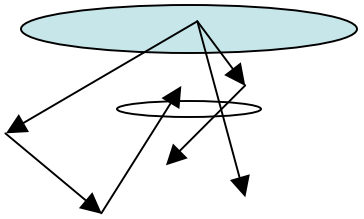
Where's he going with this?

For Scattering



$f(\Omega.\Omega') = (1/(\mu_s))d\mu_s(\Omega.\Omega')$

Phase function is the probability of a photon moving along Ω is scattered onto Ω'.



Energy Radiance

The amount of energy per unit time moving through an area dA (normal to Ω) at position r is called the radiance: $L(r, \Omega)$

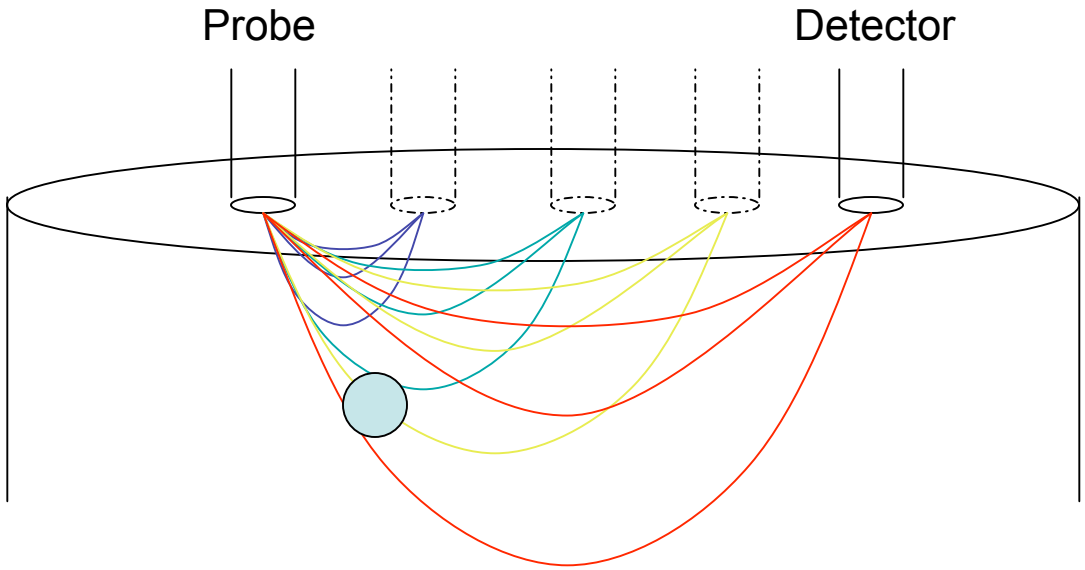
Holy Grail

- The Radiative Transfer Equation is derived (not here) to be:

  $\Omega.(\text{dell operator}) * L(r, \Omega) + \mu_t(r) * L(r, \Omega) = \text{Int}[d\Omega * d\mu_s * (\Omega.\Omega') * L(r, \Omega)] + s(r, \Omega)$

- Solving this equation will explain how light moves through a given medium.

The Imaging (Diffusely Optical)



The Potma Way