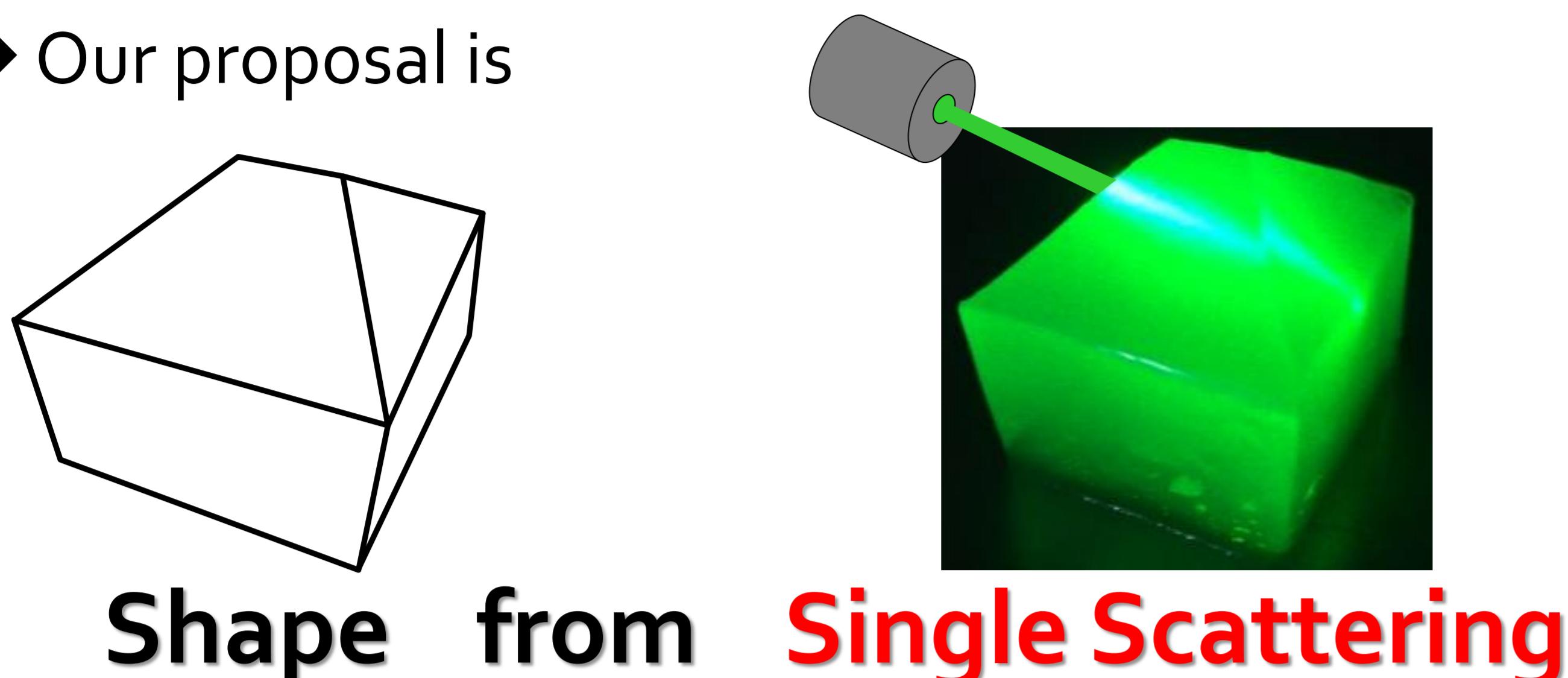


Shape from Single Scattering for Translucent Objects

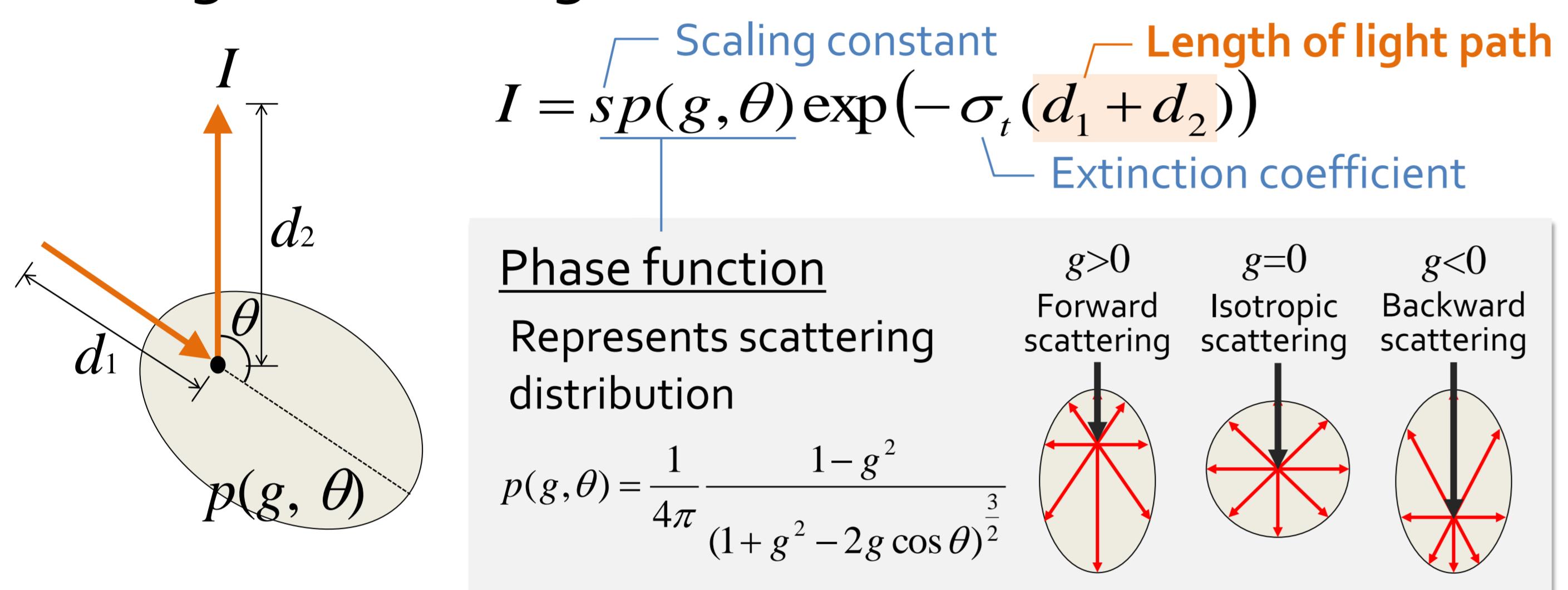
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Yasuyuki Matsushita**
Yasushi Yagi*
*Osaka University
**Microsoft Research Asia

Outline

- ◆ Our proposal is

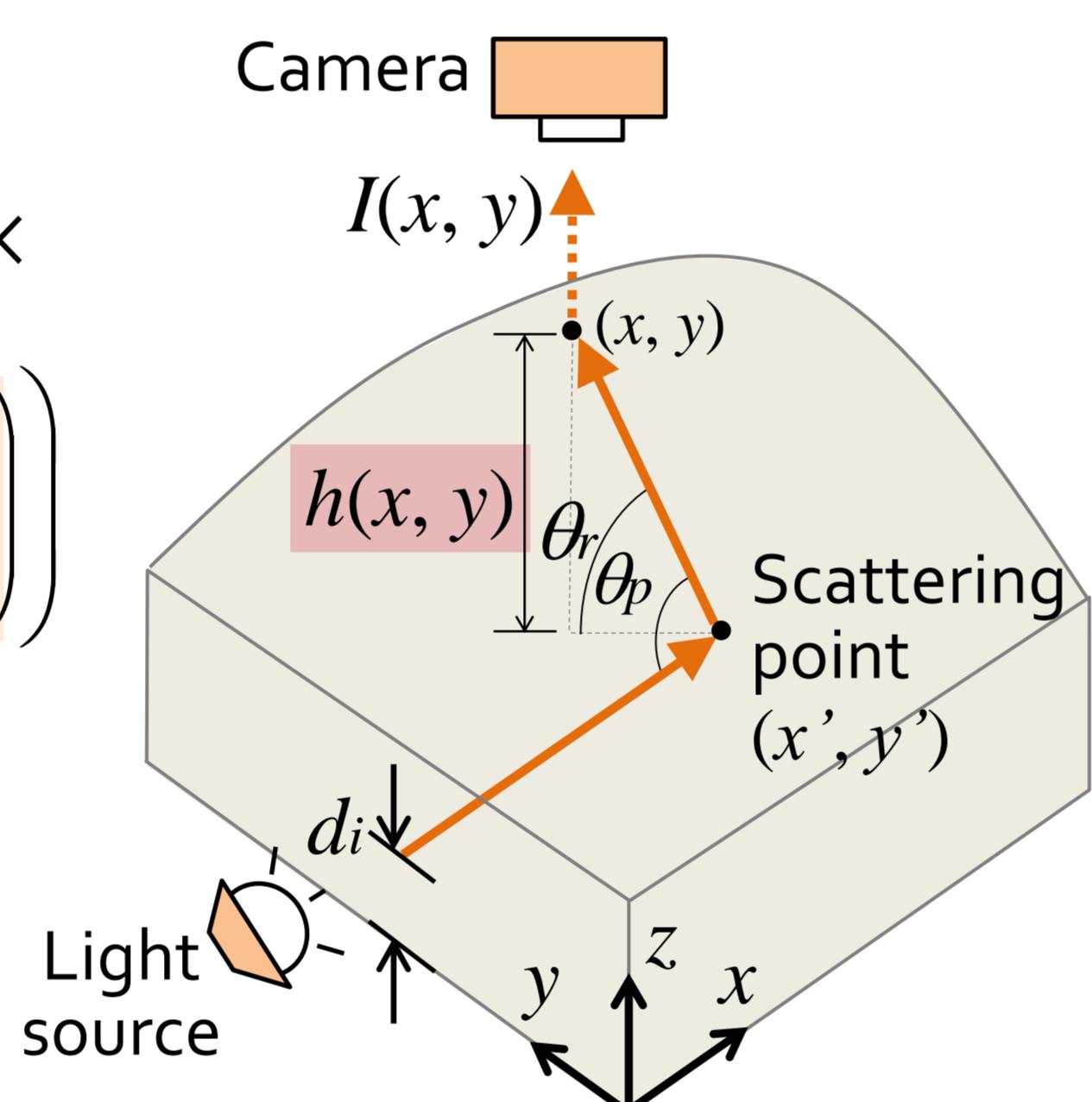


- ◆ Single scattering model

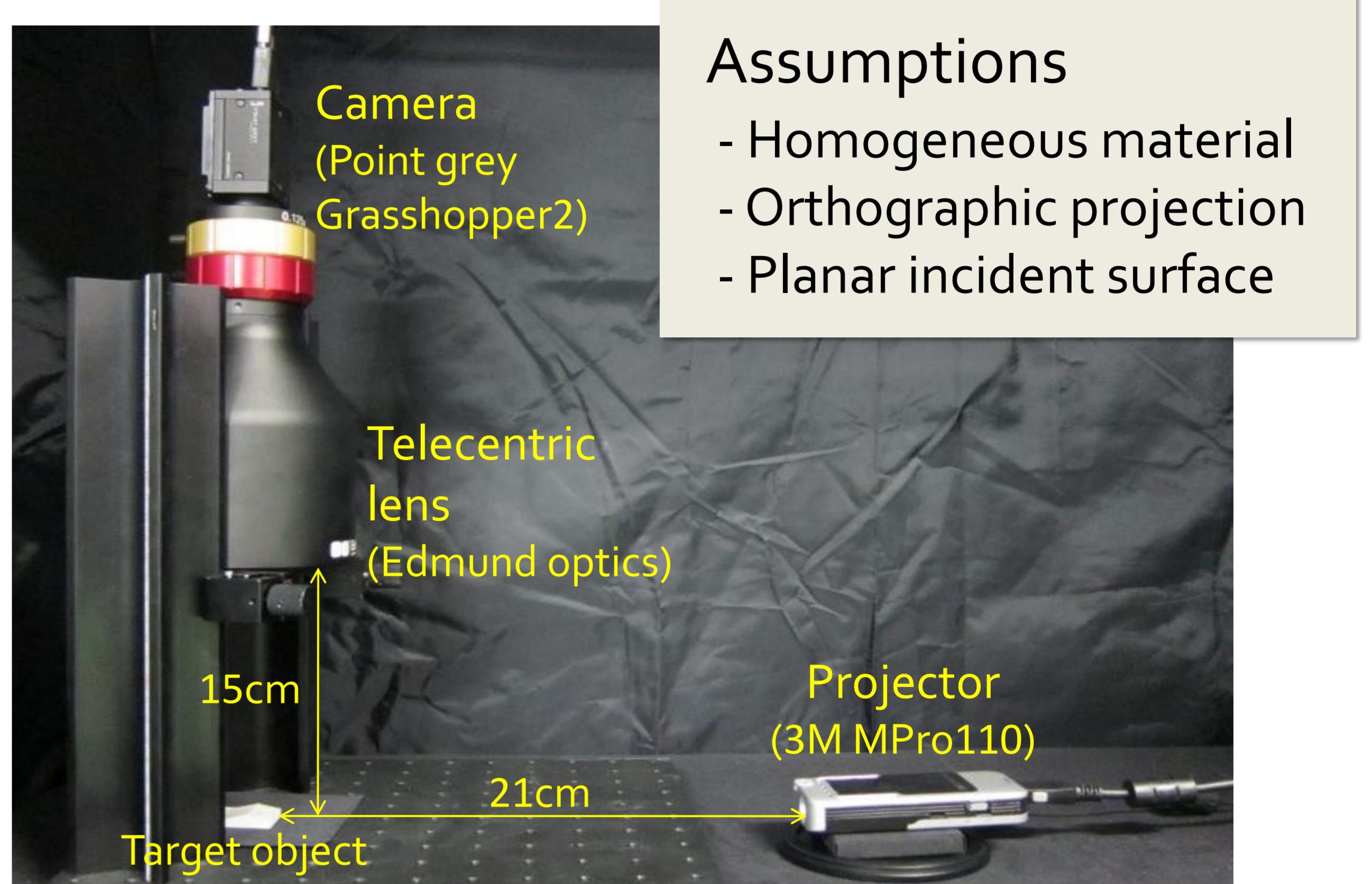


- ◆ Light path to height

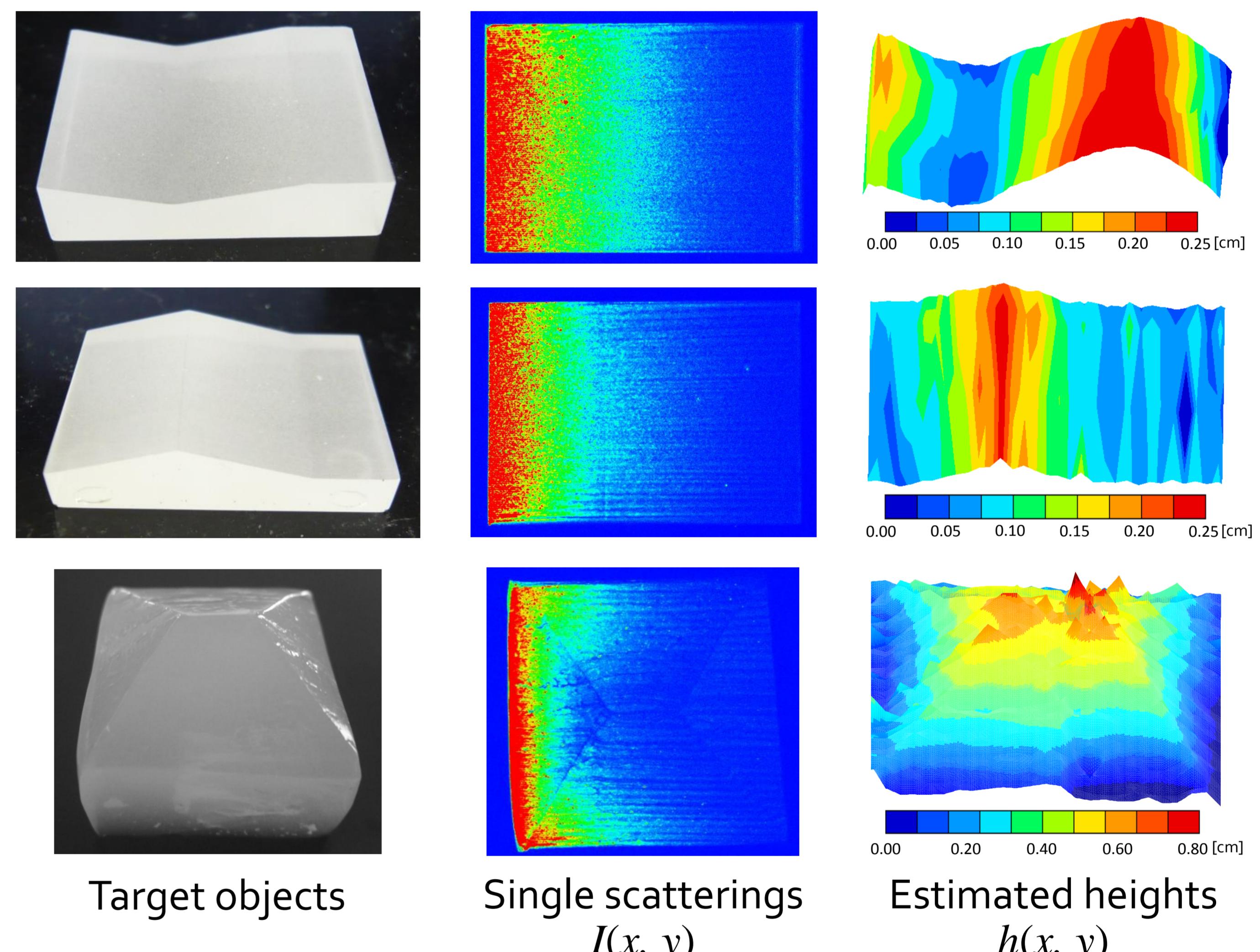
$$I(x, y) = s F_t^{in} F_t^{out}(x, y) p(g, \theta_p) \times \exp\left(-\sigma_t\left(x' + \frac{h(x, y) - d_i}{\sin \theta_r}\right)\right)$$



- ◆ Measurement setting

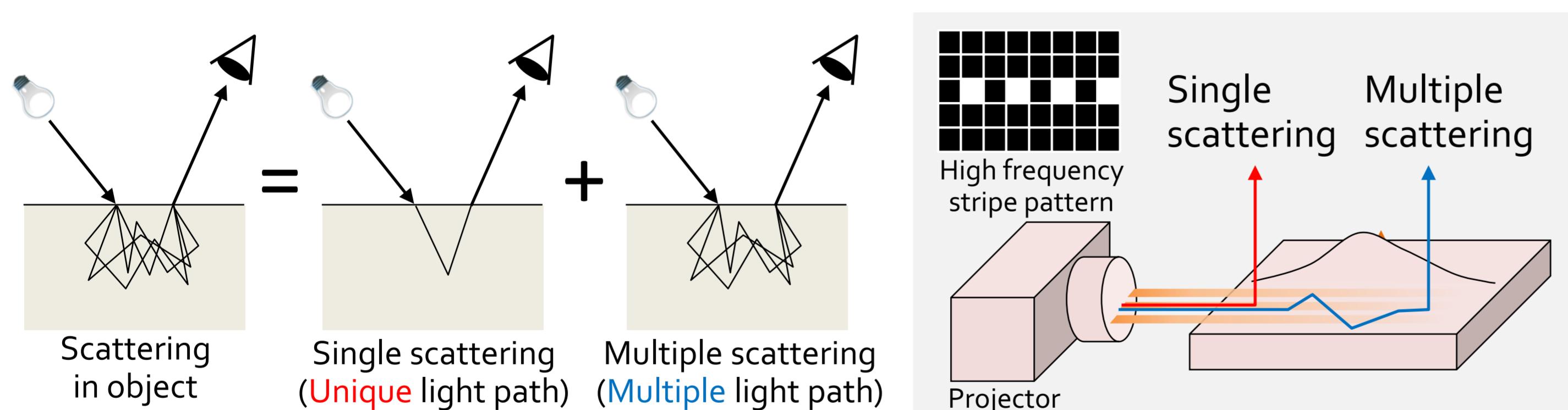


- ◆ Experimental results

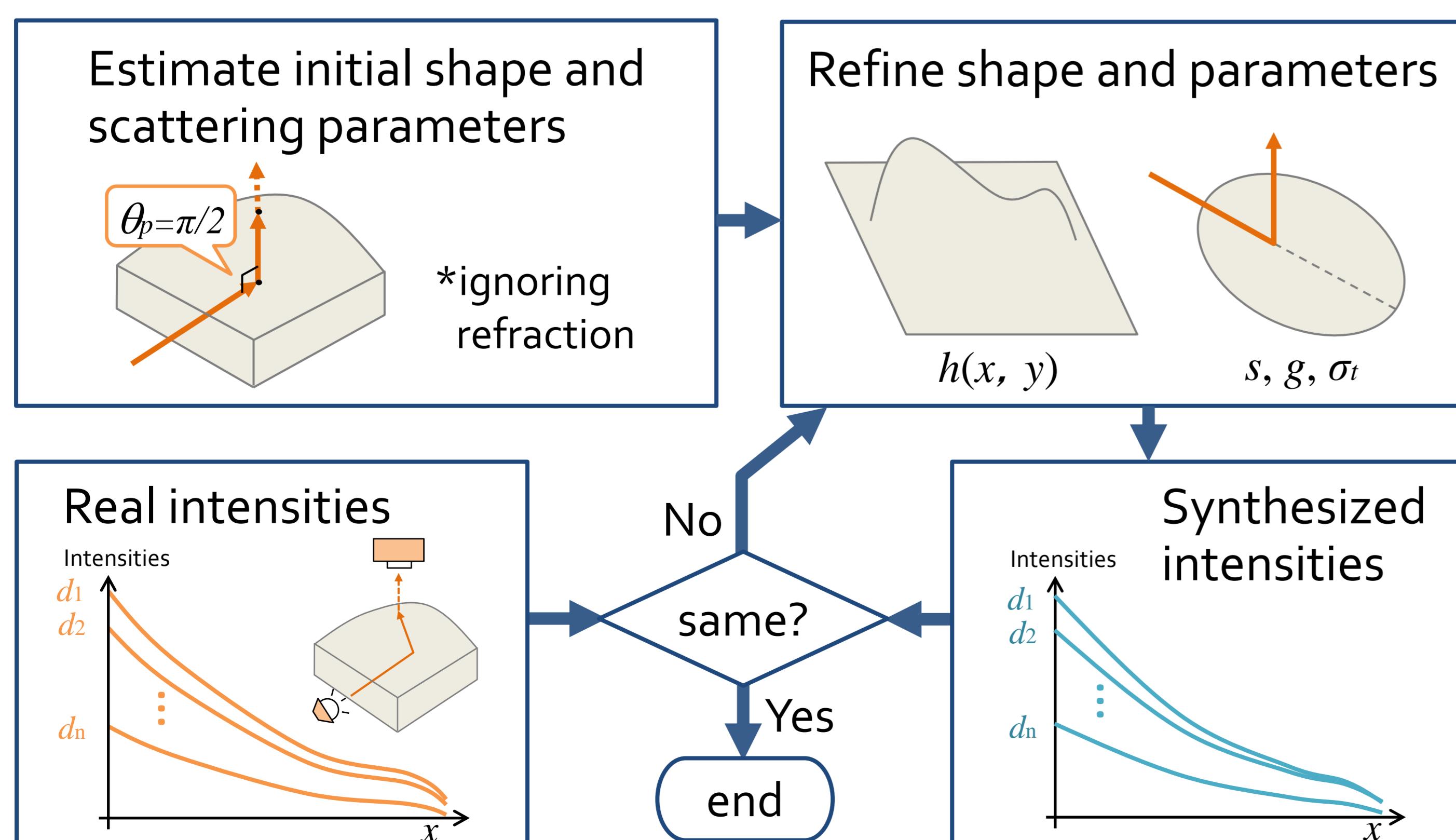


Implementation

- ◆ Scattering decomposition [Mukaigawa et al. CVPR2010]

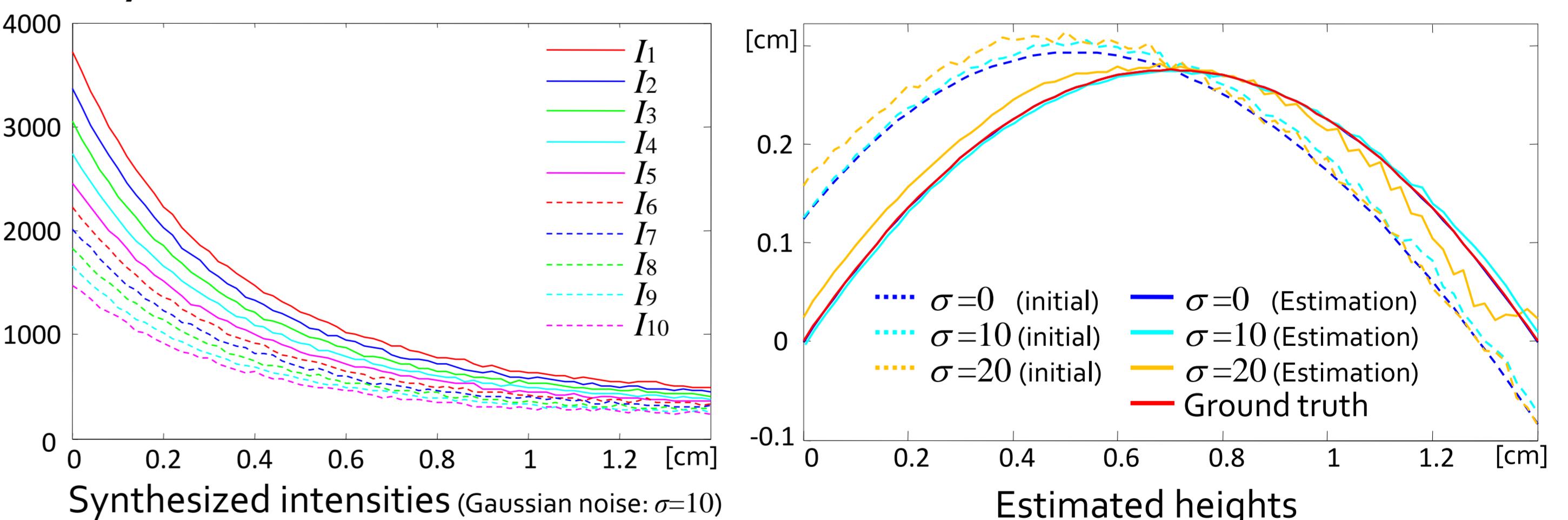


- ◆ Simultaneous estimation of surface shape $h(x, y)$ and scattering parameters s, g , and σ_t



Numerical evaluation

- ◆ Synthetic data and estimated results in 1D



- ◆ Synthetic data and estimated result in 2D

