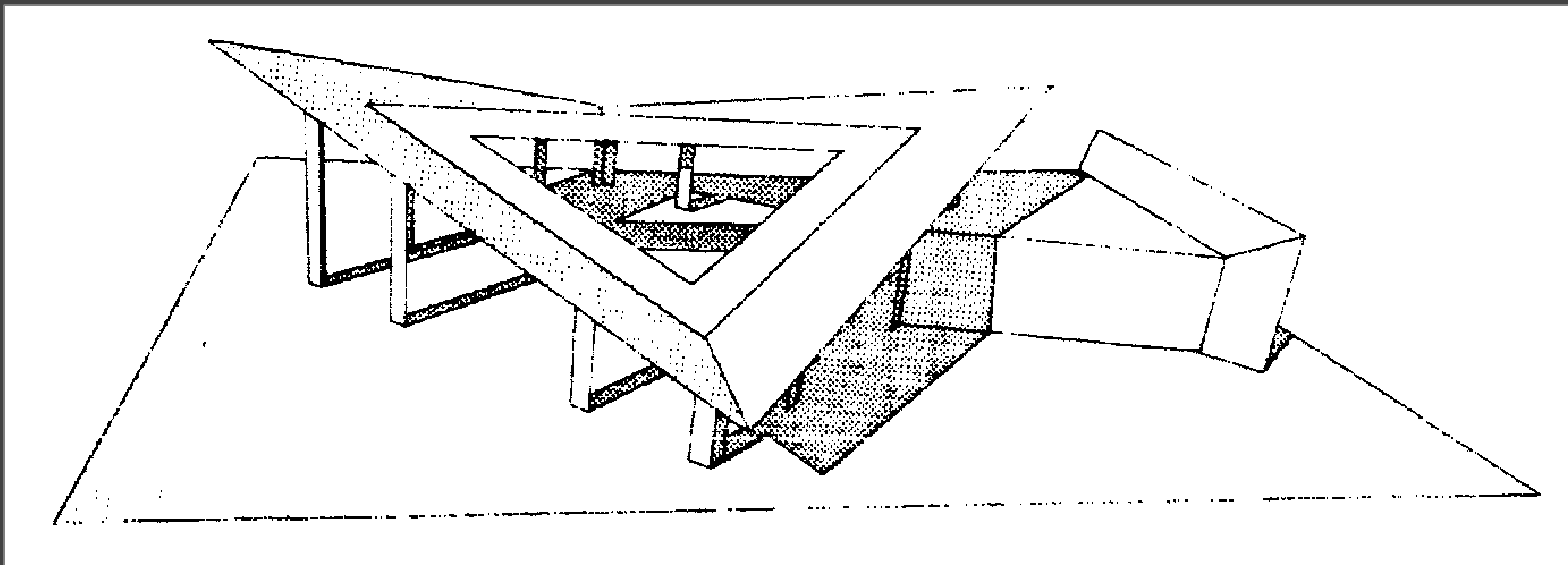
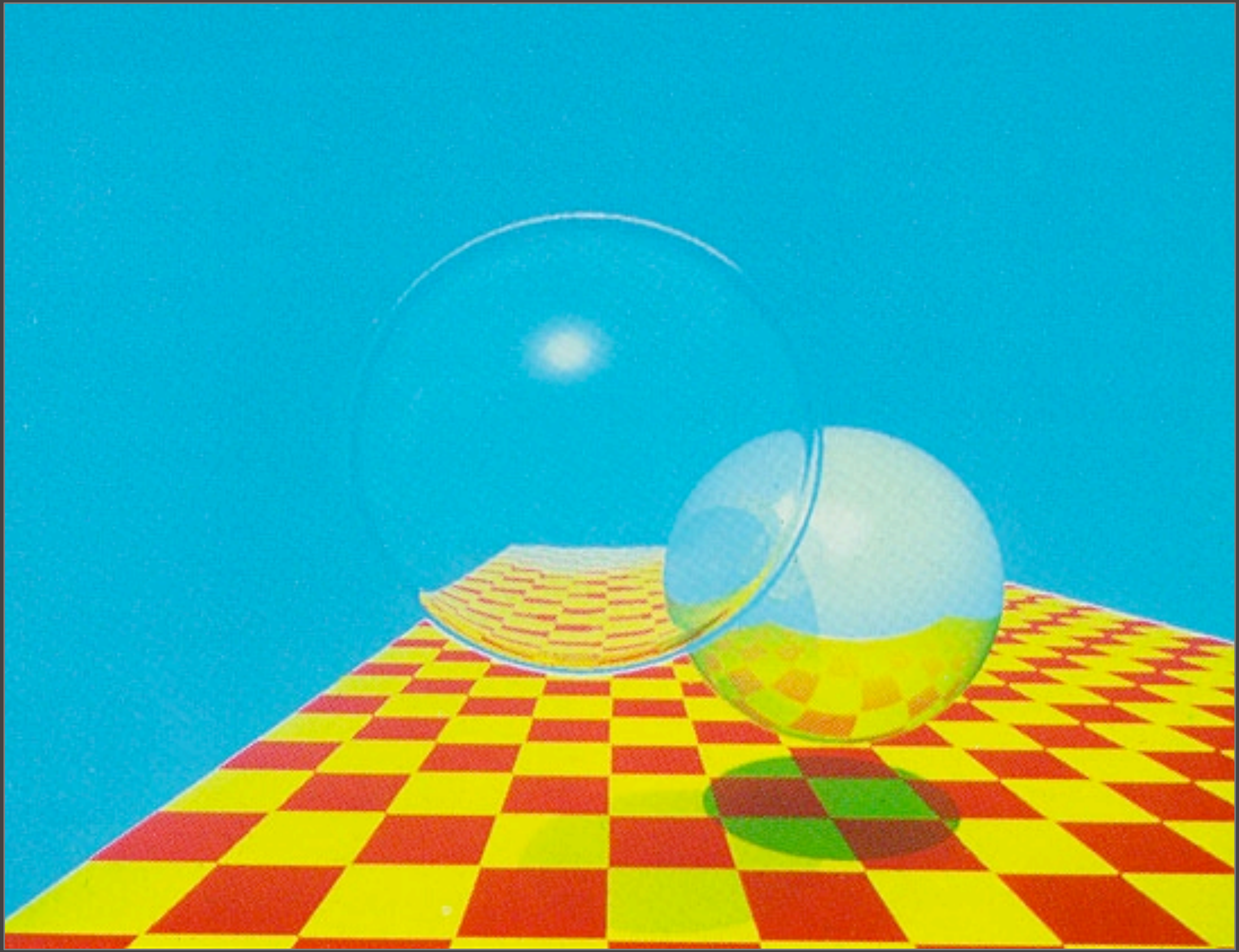
CS6630: Realistic Image Synthesis

Prof. Steve Marschner
Spring 2012



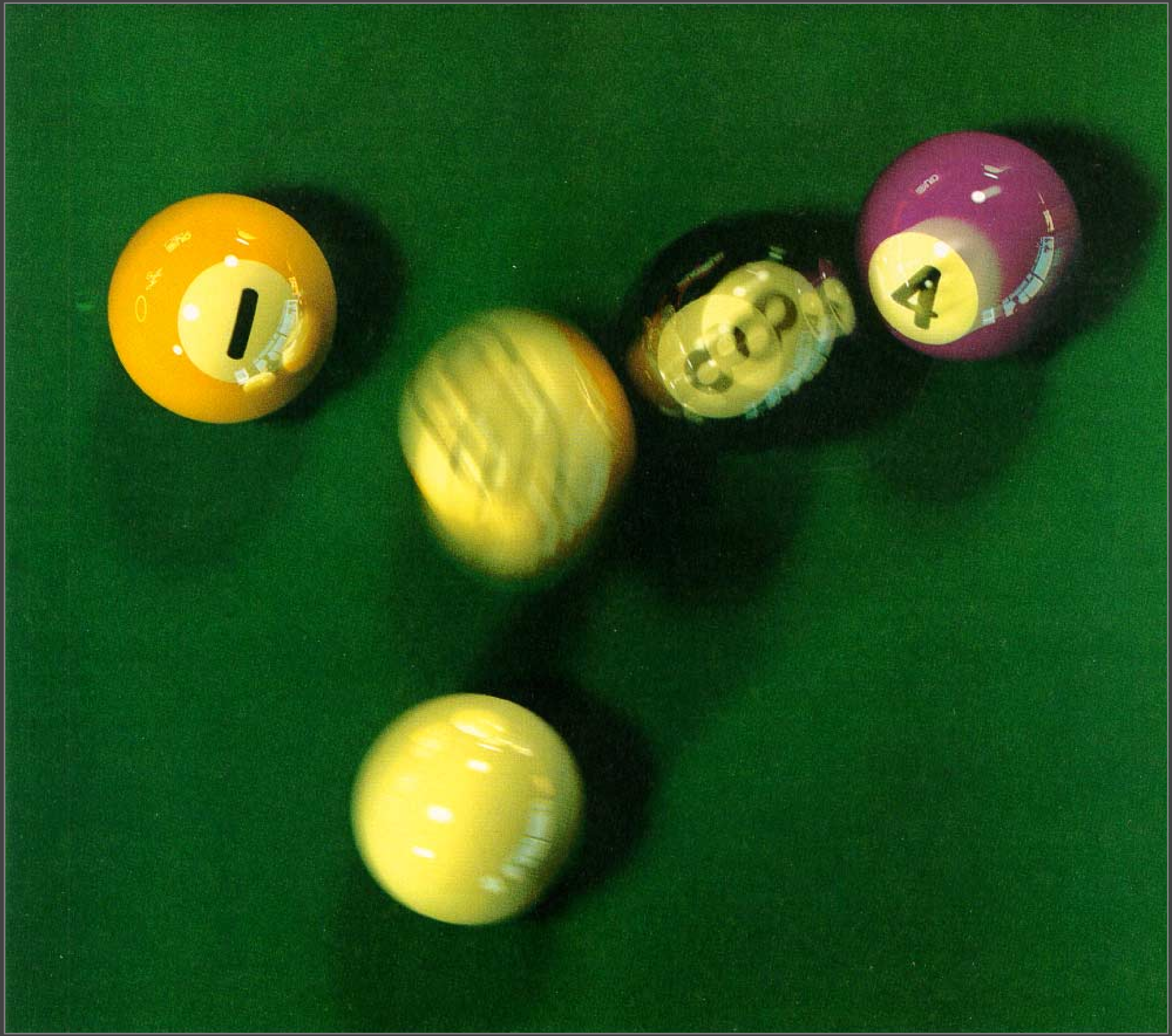
Appel 1968

Ray Tracing for shadows

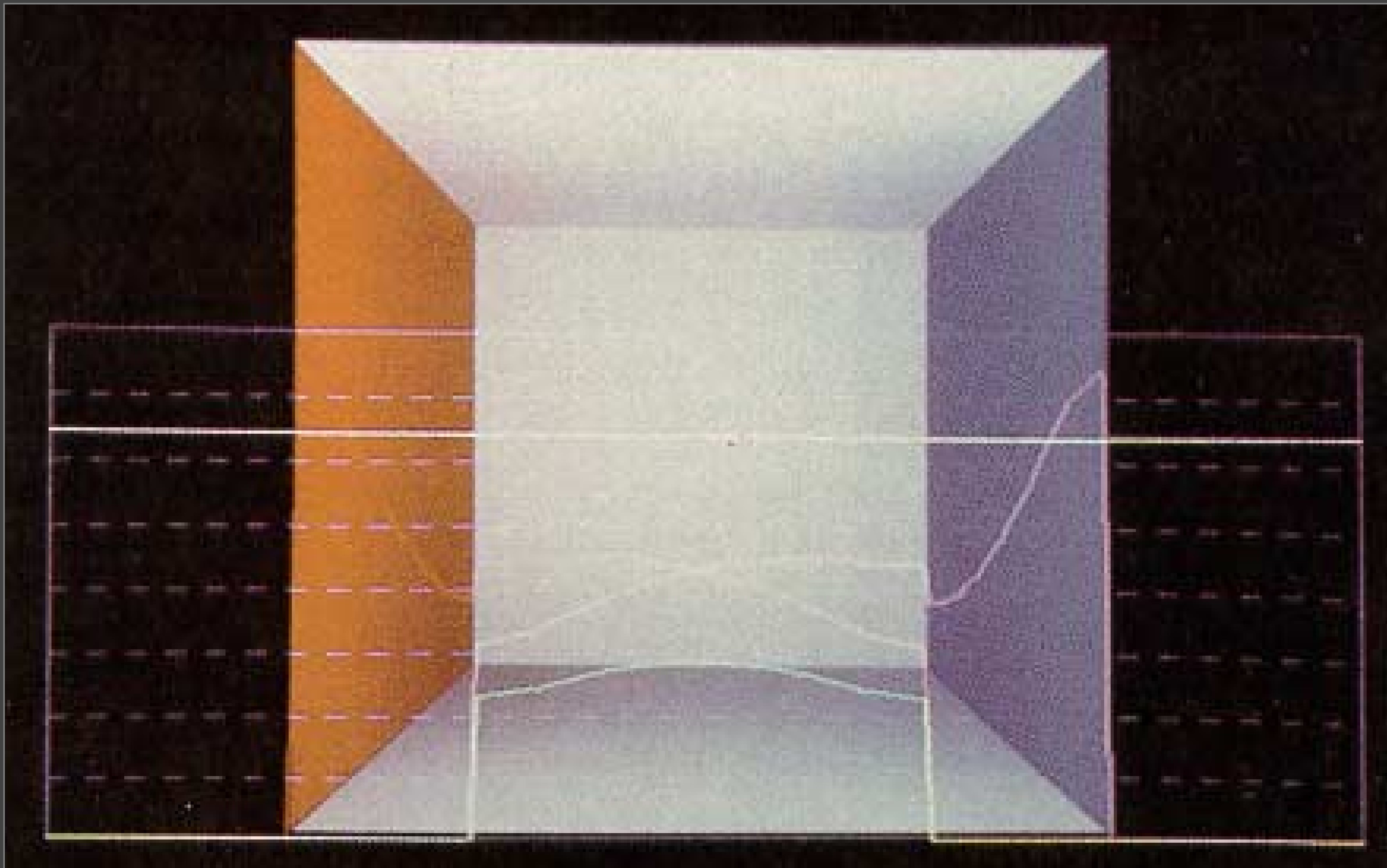


Whitted 1980

Recursive ray tracing



Cook, Porter, Carpenter 1984
Distribution Ray Tracing



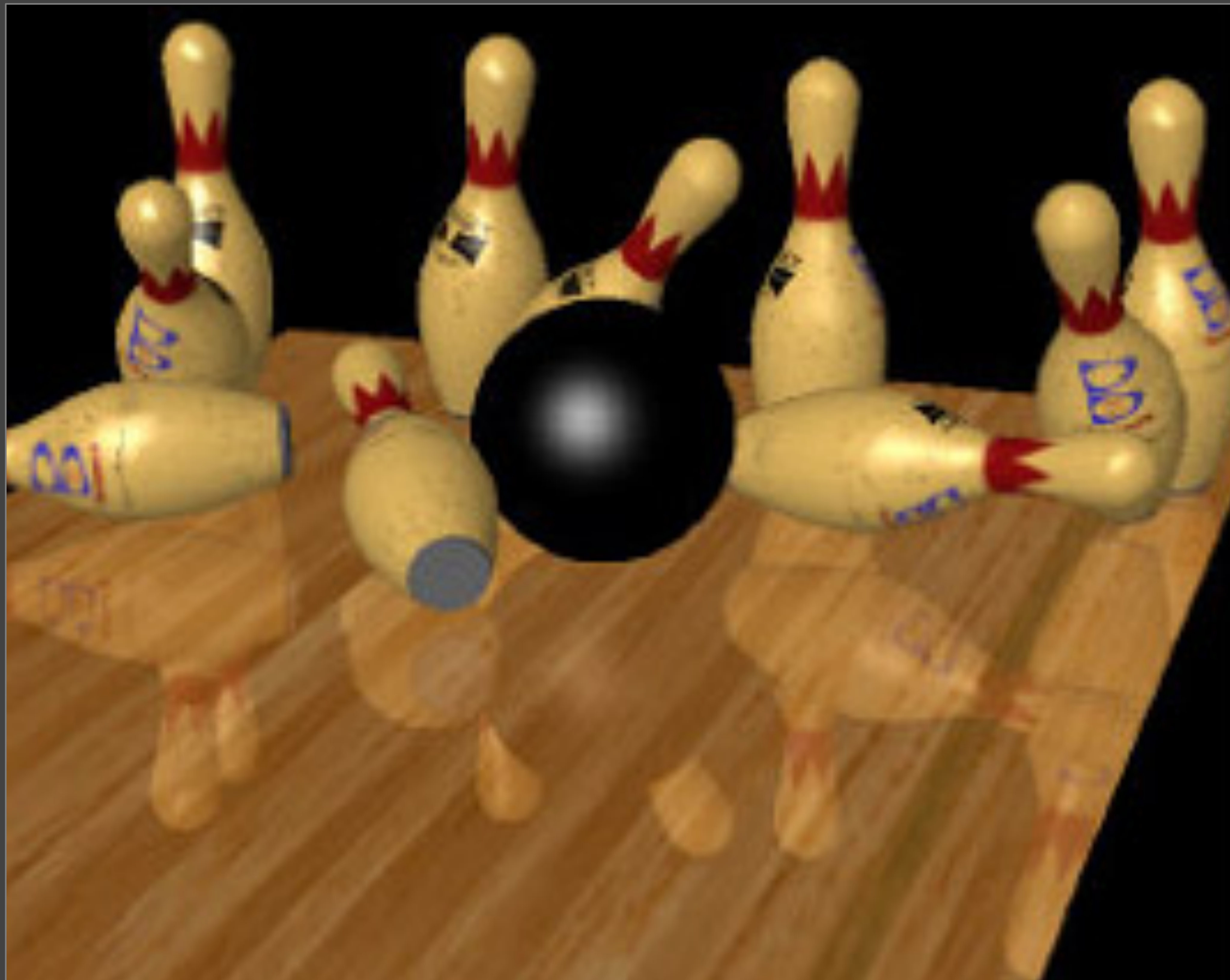
Goral et al. 1984
Radiosity method

Hanrahan et al. 1991
Hierarchical radiosity

Lischinski et al. 1993
Discontinuity meshing

Sillion et al. 1991

Nondiffuse radiosity



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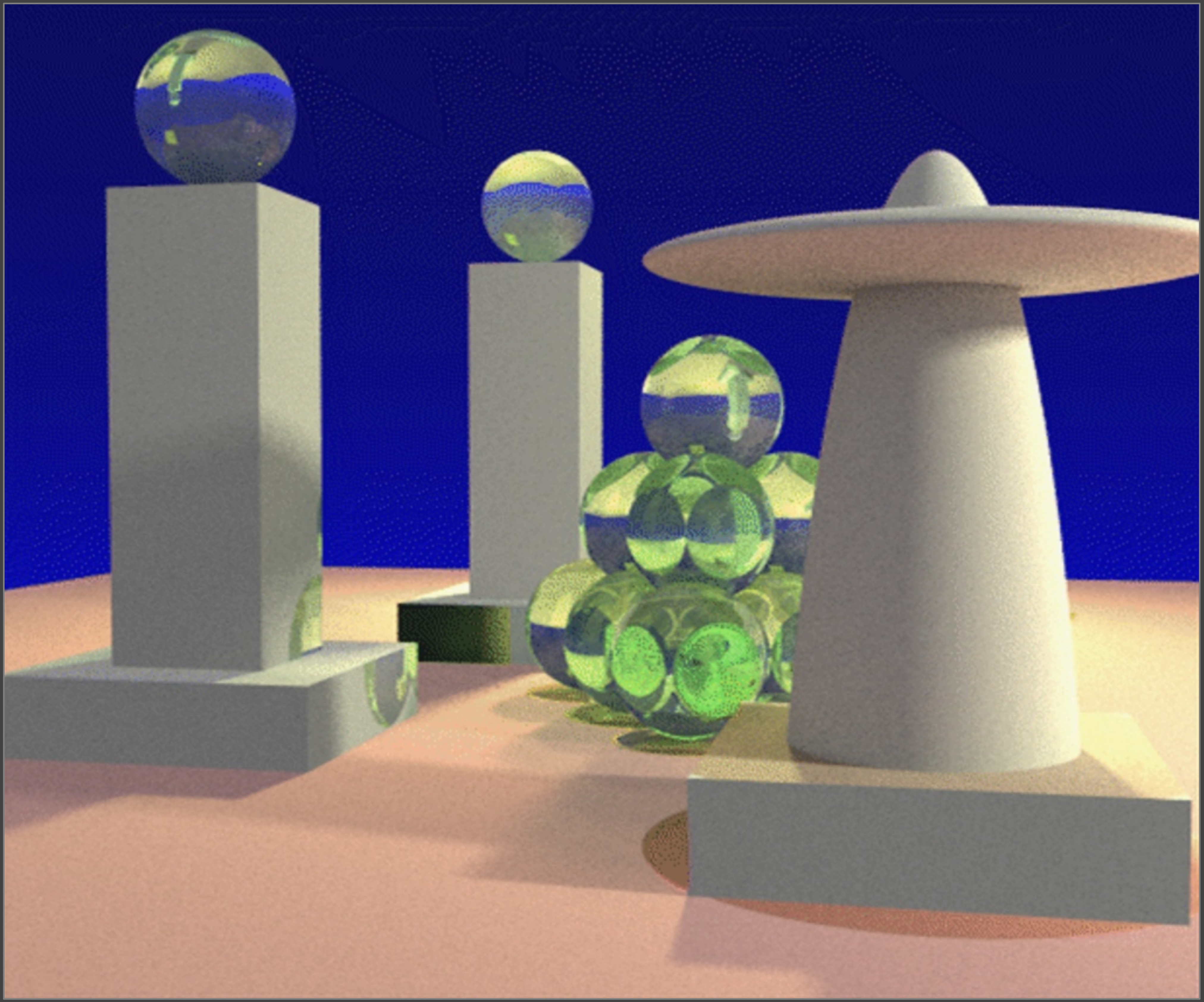
Hanrahan and Lawson 1992

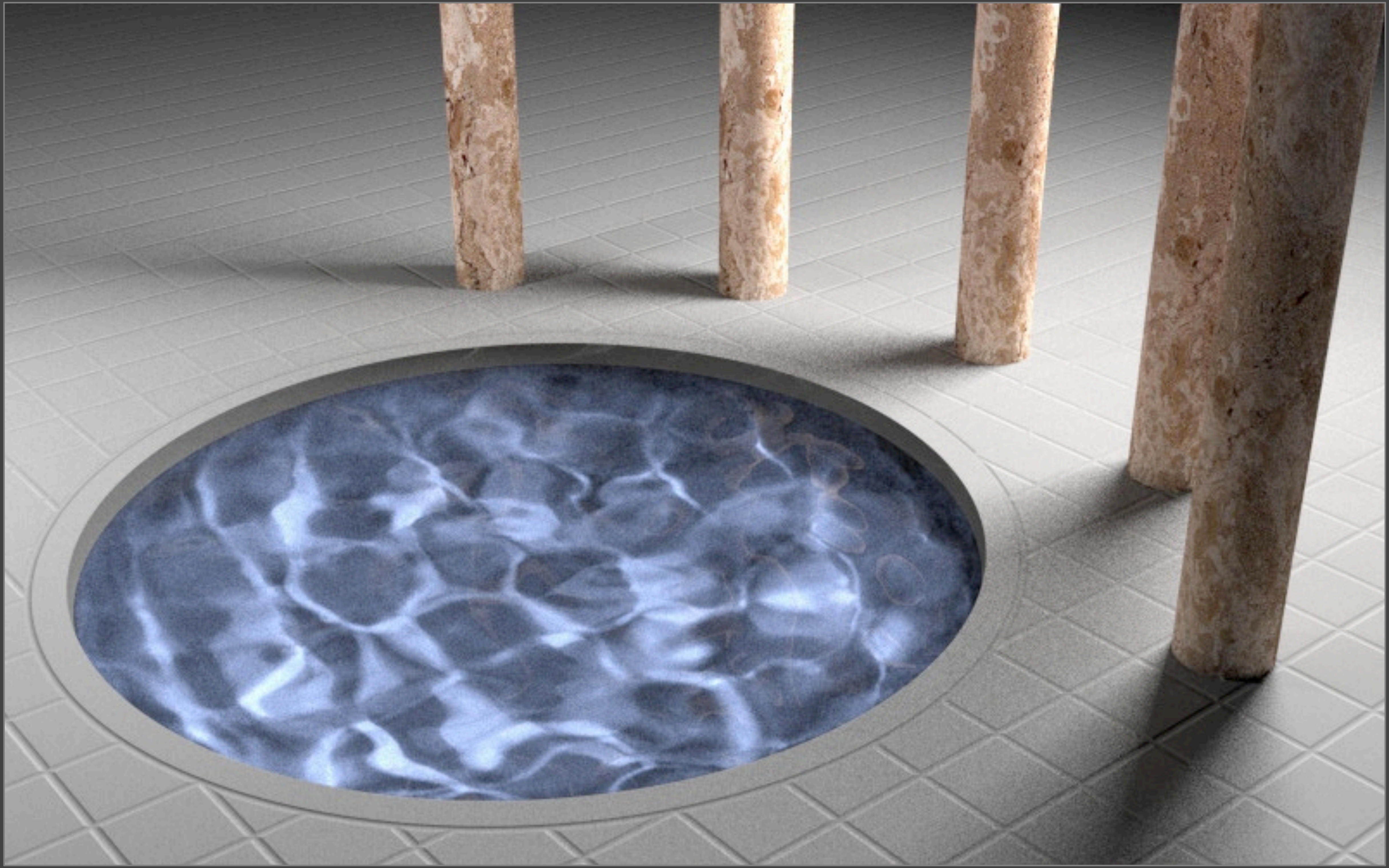
RenderMan shading language



Kajiya 1986

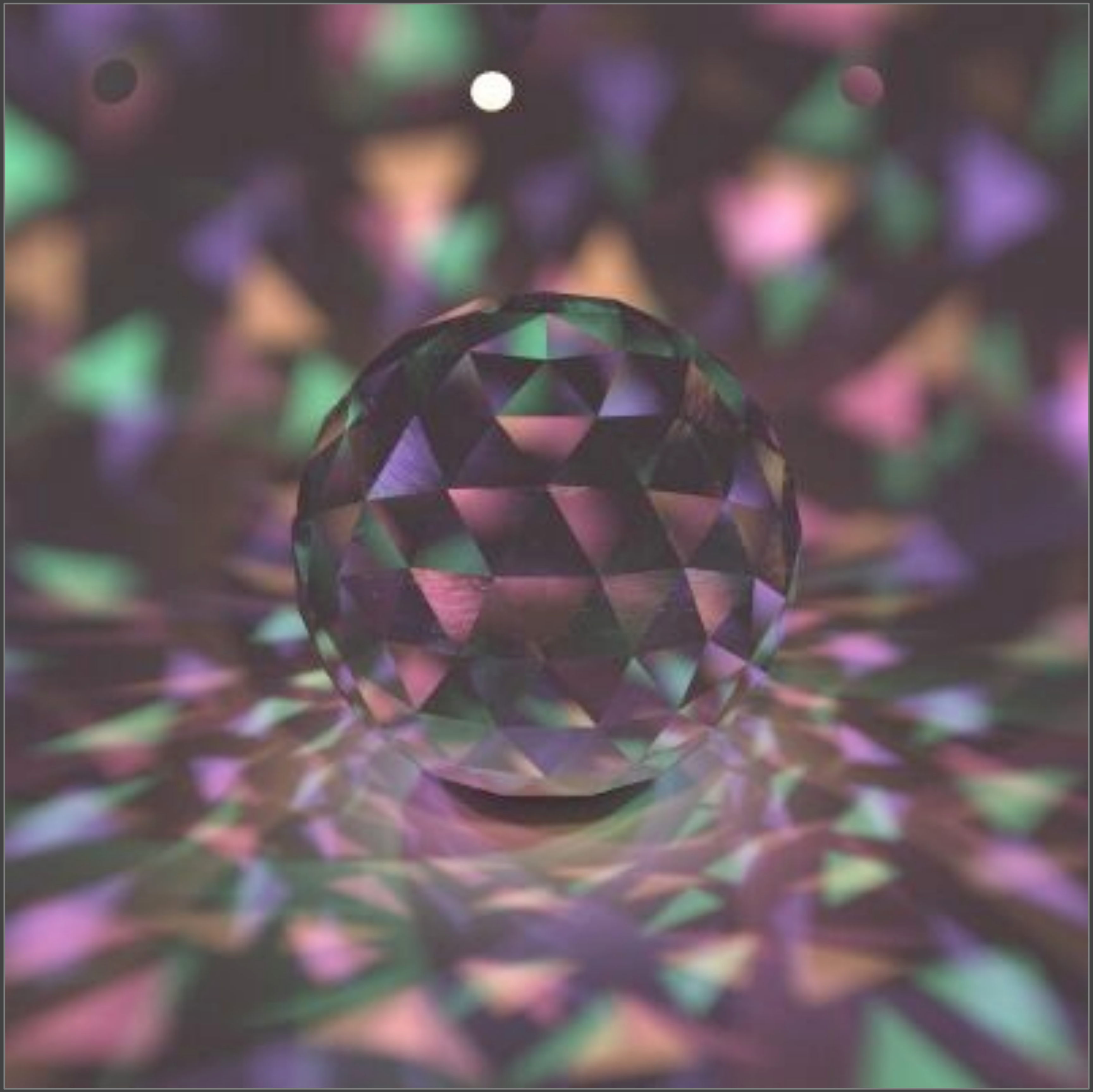
The Rendering Equation; path tracing

Lafortune and Willems 1993 • Veach and Guibas 1994
Bidirectional path tracing



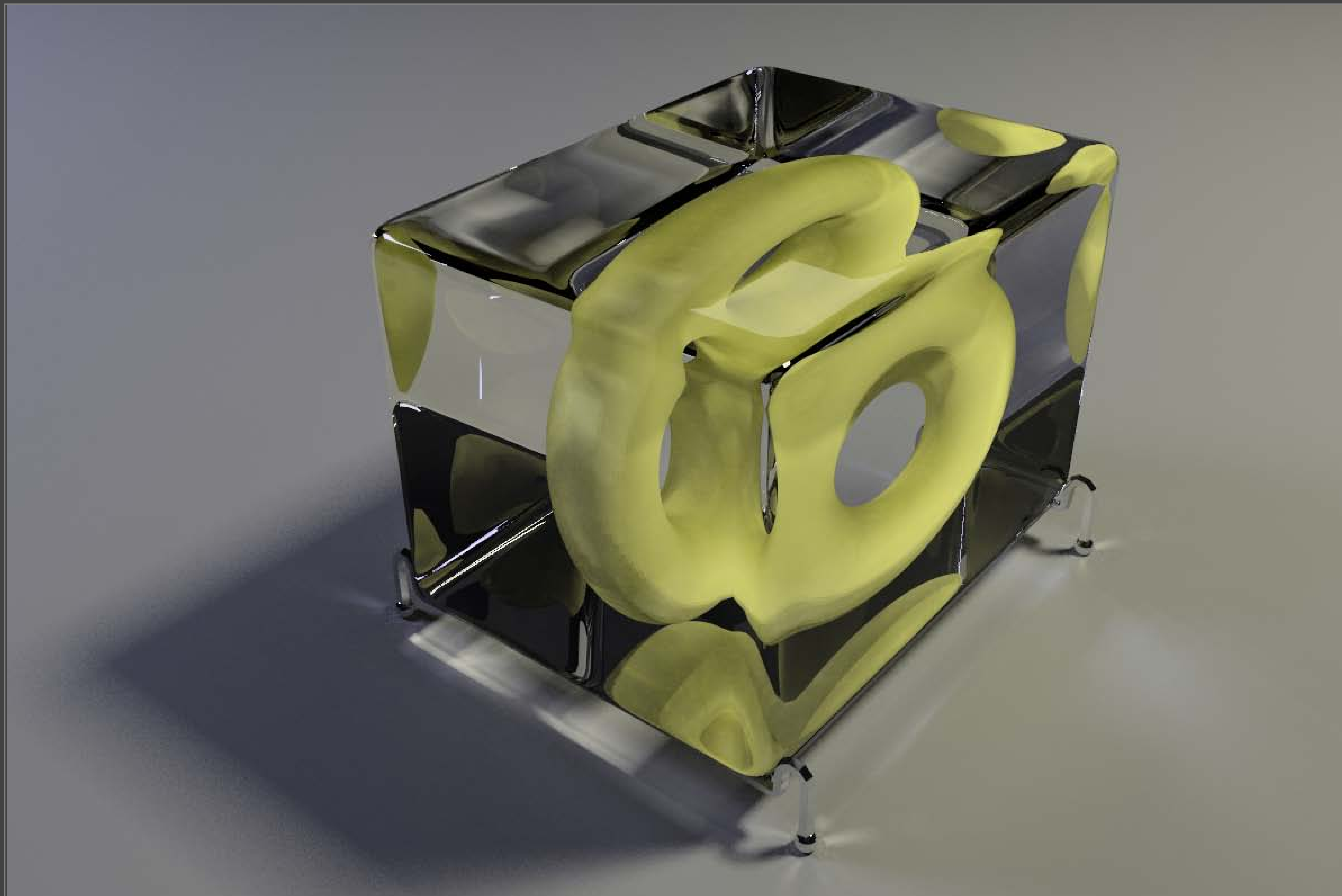
Veach and Guibas 1997

Markov Chain Monte Carlo (Metropolis Light Transport)

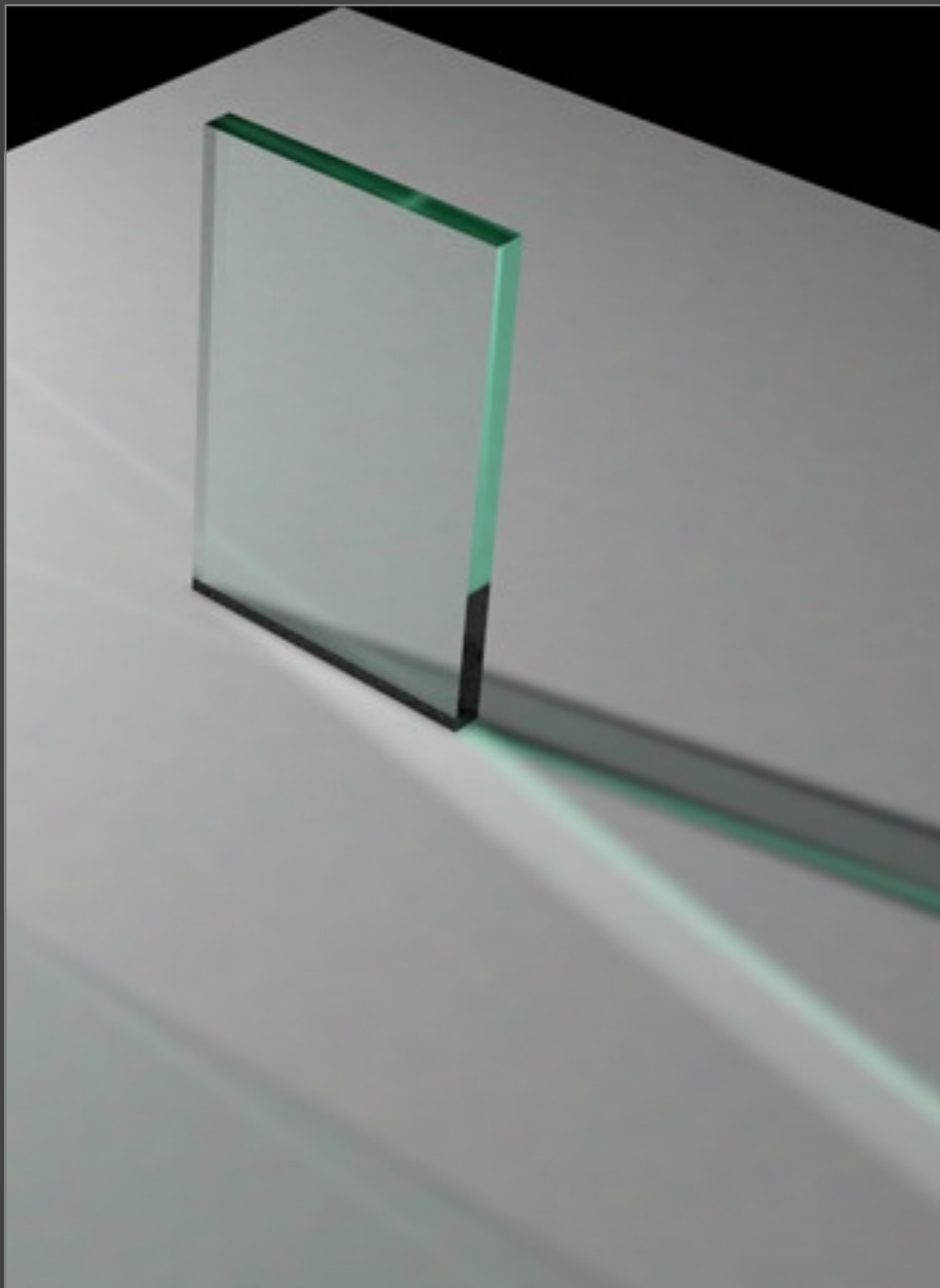


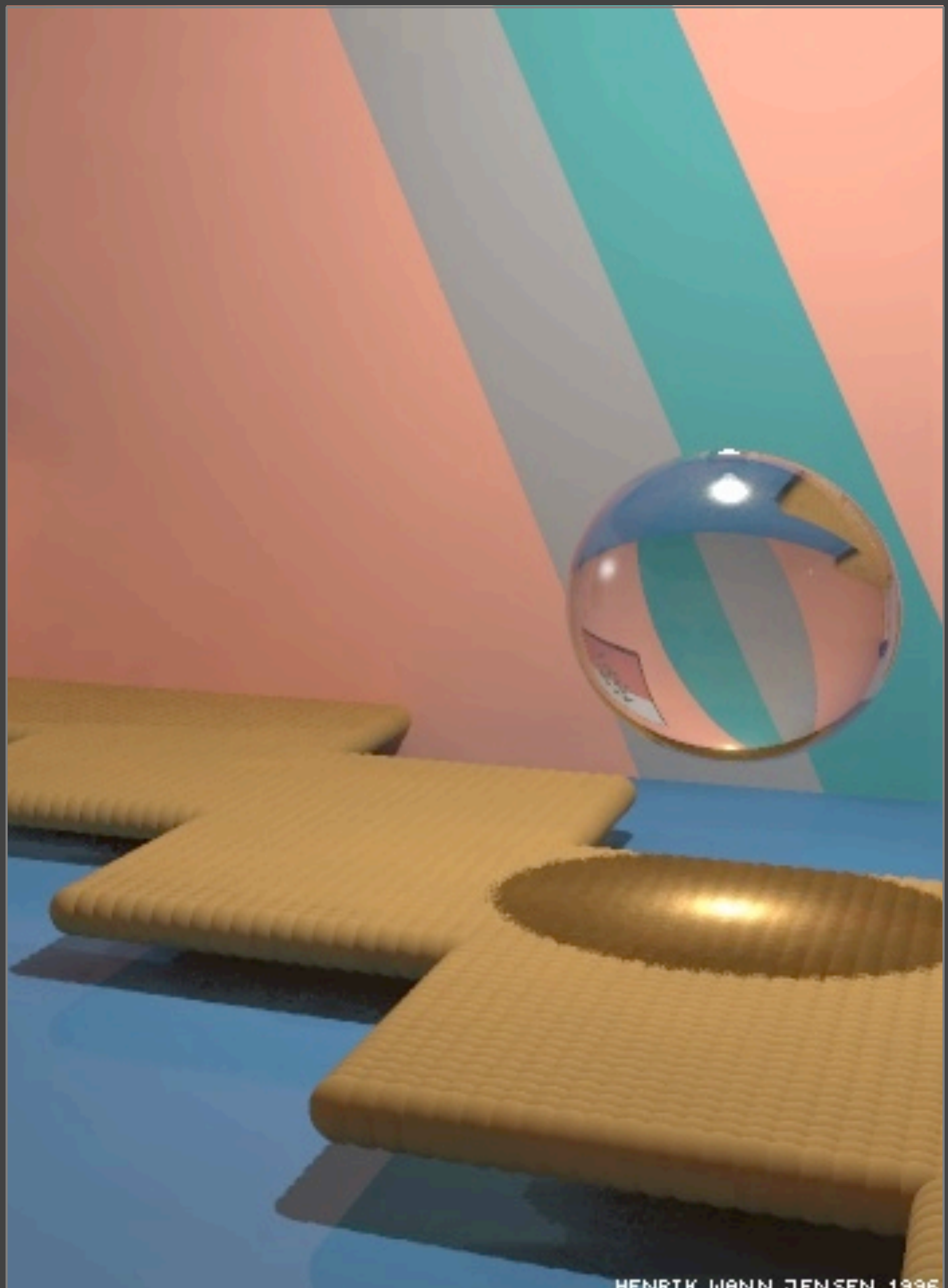
Kelemen et al. 2002

Primary sample space MCMC



Cline et al. 2005
“Energy Redistribution” with non-ergodic MCMC





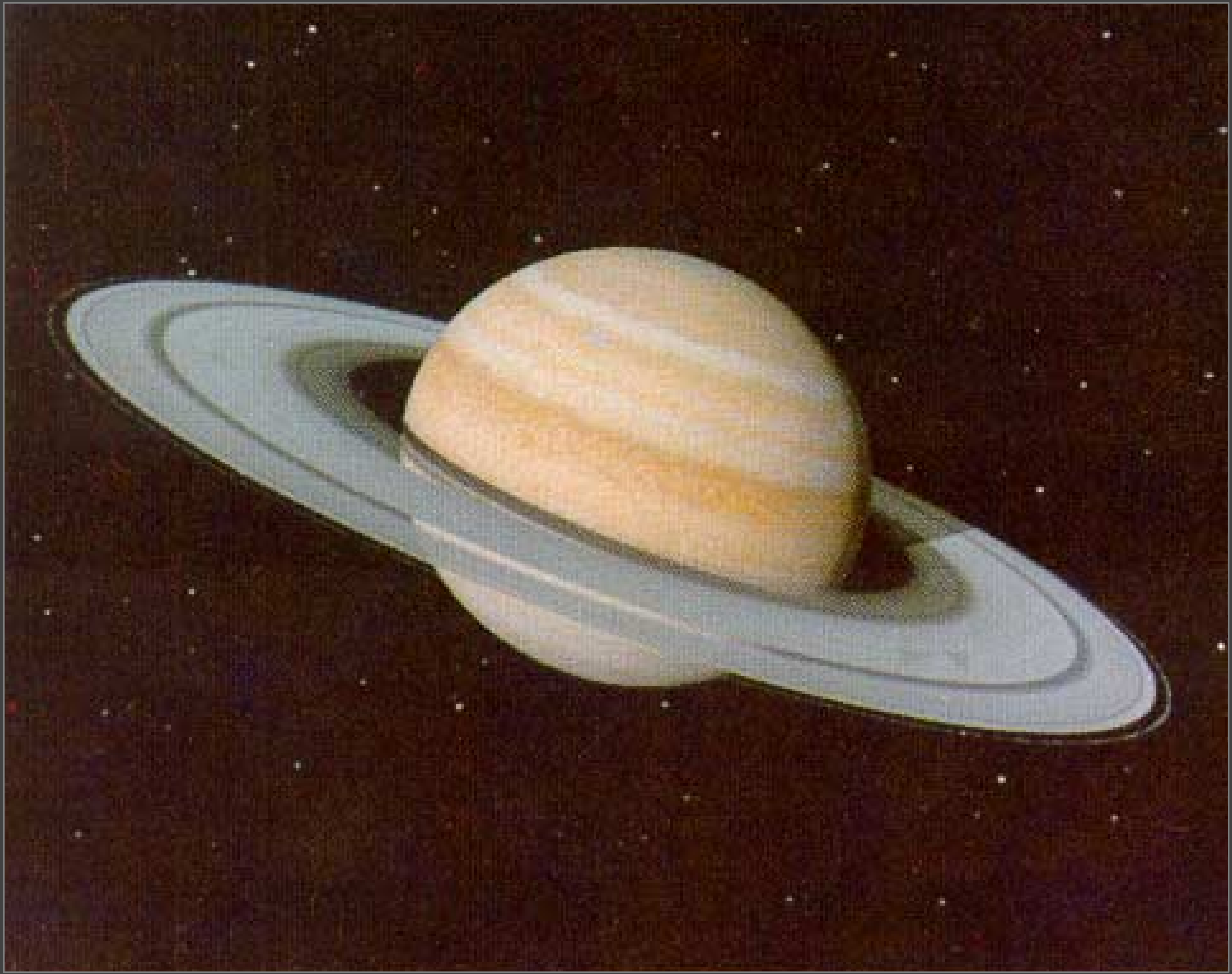
Walter et al. 1997 • Jensen 1996
Density estimation (Photon Mapping)

Henrik Wann Jensen

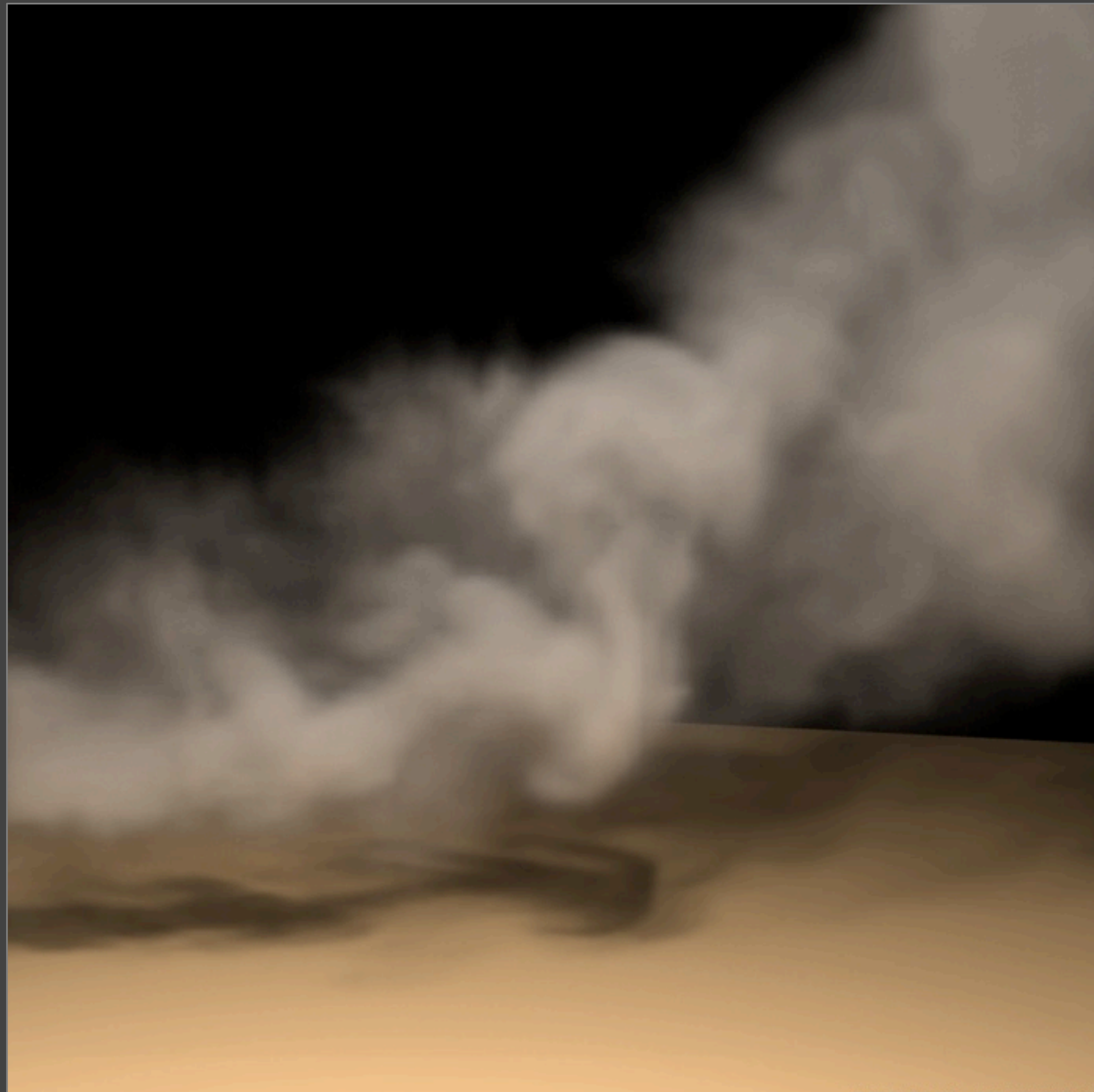
Keller 1997

Virtual point lights (Instant Radiosity)

Walter et al. 2005
LightCuts



Blinn 1982
Volume scattering



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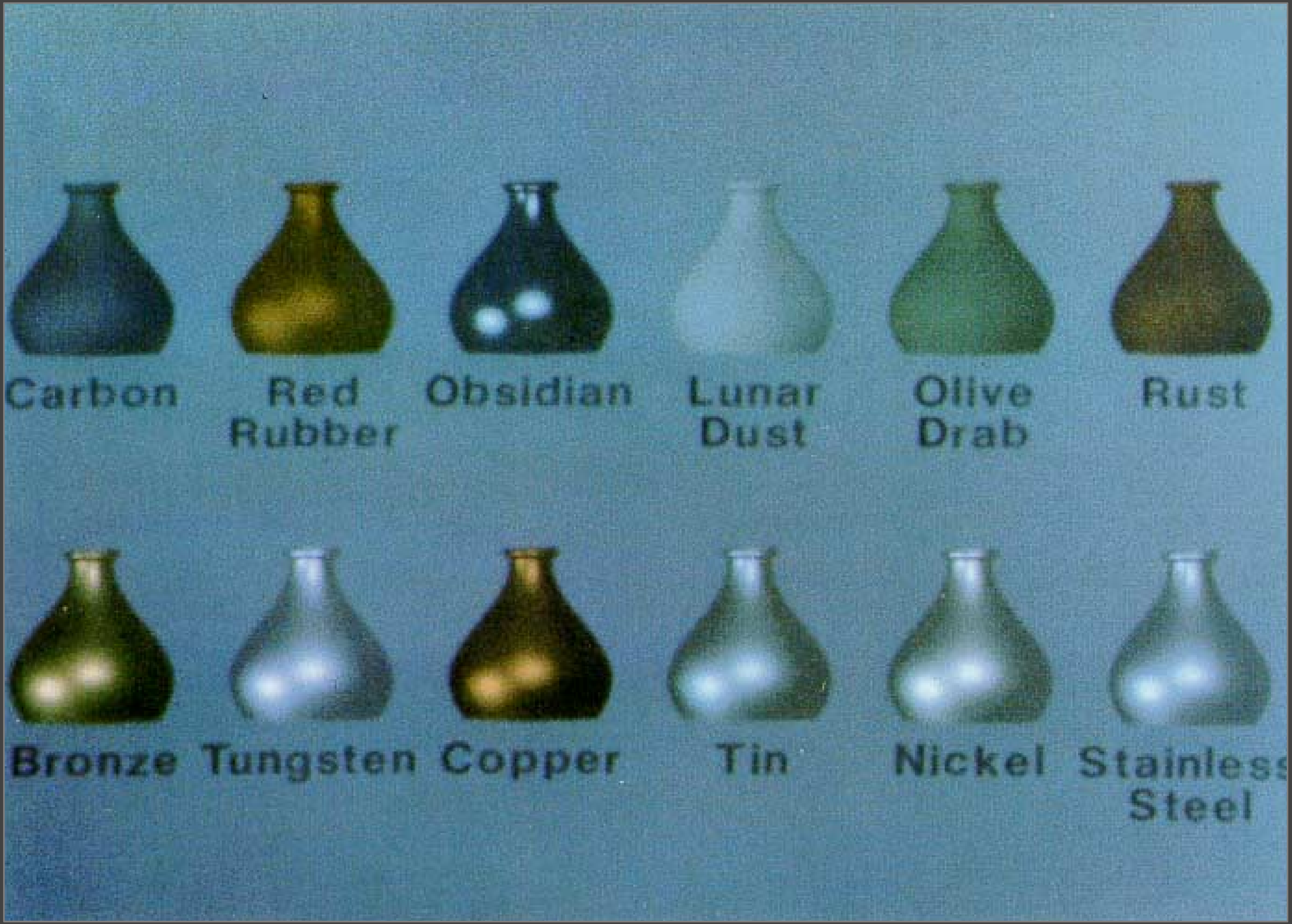
Jensen and Christensen 1998

Volumetric photon mapping

Jarosz et al. 2008
Beam Radiance Estimate

Pauly et al. 2000
Metropolis in volumes



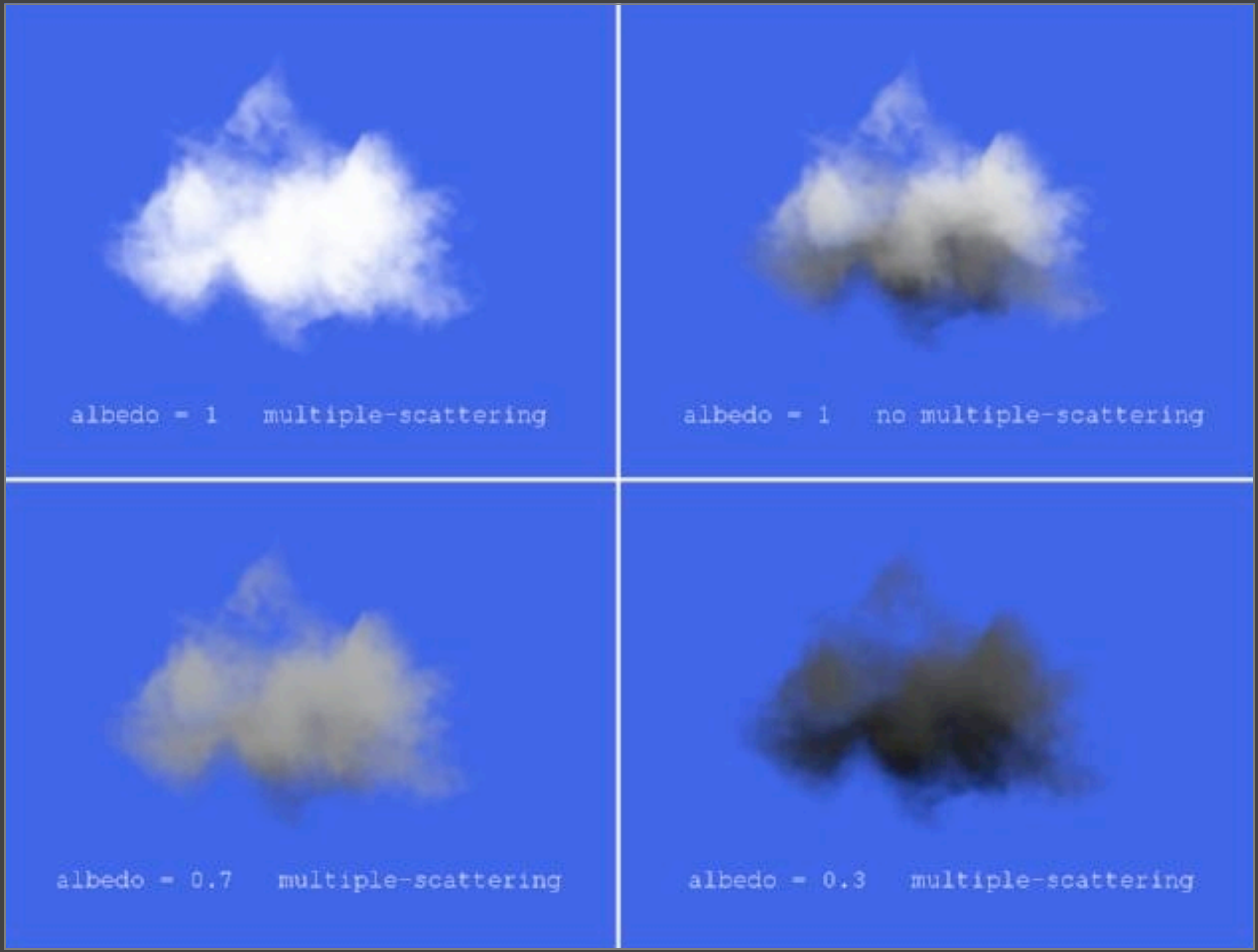
Cook and Torrance 1981

Microfacet reflection models

Walter et al. 2007

Microfacet transmission model

Jakob et al. 2010
Anisotropic volume media



Stam 1995

Diffusion for light transport


[Niniane Wang]

Jensen, Marschner, Levoy, and Hanrahan 2001

Subsurface scattering

d'Eon and Irving 2011
Advanced diffusion models