Surfaces

The surface shader defines the light interaction at the surface of the mesh. One or more BSDFs specify if incoming light is reflected back, refracted into the mesh, or absorbed.

Emission defines how light is emitted from the surface, allowing any surface to become a light source.

Terminology

BSDF

Stands for Bidirectional Scattering Distribution Function. It defines how light is reflected and refracted at a surface.

Reflection

BSDFs reflect an incoming ray on the same side of the surface.

Transmission

BSDFs transmit an incoming ray through the surface, leaving on the other side.

Refraction

BSDFs are a type of *Transmission*, transmitting an incoming ray and changing its direction as it exits on the other side of the surface.

BSDF Parameters

A major difference from non-physically-based renderers is that direct light reflection from lights and indirect light reflection of other surfaces are not decoupled, but rather handled using a single BSDF. This limits the possibilities a bit, but we believe overall it is helpful in creating consistent-looking renders with fewer parameters to tune.

Roughness

For the glossy BSDFs, the *roughness* parameter controls the sharpness of the reflection, from 0.0 (perfectly sharp) to 1.0 (very soft).

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