

Specular Effects on the GPU: State of the Art

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This survey reviews algorithms that can render specular, i.e. mirror reflections, refractions, and caustics on the GPU. We establish a taxonomy of methods based on the three main different ways of representing the scene and computing ray intersections with the aid of the GPU, including ray tracing in the original geometry, ray tracing in the sampled geometry, and geometry transformation. Having discussed the possibilities of implementing ray tracing, we consider the generation of single reflections/refractions, inter-object multiple reflections/refractions, and the general case which also includes

self reflections or refractions. Moving the focus from the eye to the light sources, caustic effect generation approaches are also examined.