

Ominous Reflective/Refractive Sheet in Kelley

CS457 Shaders: Project Four

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This project plays around with bump mapping and displacement mapping to create funky textures using the fragment and vertex shaders. The displacement mapping creates physical displacements of the vertices to create waves in the object plane, but the bump mapping creates the illusion of crinkled, random texture by perturbing and adjusting surface normals.

The cooler addition to this project is the ability to have the plane reflect and refract, while adjusting texture and index of refraction. By creating a cube mapping around the plane, we can see how it interacts with the images around it when we adjust the sliding scale between total reflection and total refraction. Some screenshots of the project are included on the next page:

Screenshots:



Max reflection with some texture thrown in



Max refraction, $u\eta=1$.



Max refraction with texture. Can start to see some reflection where the angle of refraction is too high.



50% reflection, 50% refraction



Max refraction, high $u\eta$ and texture amplitude. Looks like mold!



Max reflection, lots of texture. Chaos mode!

Video link: <https://youtu.be/OVp2oDmvyb0>