Physically-Based Rendering of Iridescence on the GPU

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Iridescence
Interference in waves of light that cause color shift.

The Problem
Dependent on wavelength; can’t do this in straight RGB!

Previous Work
Raytraced using spectral rendering, slow on the GPU, or faked.

Real-Time Spectral Rendering
How do we turn RGB lights into spectral lights, then render to RGB display?

Iridescence Shader
Use normals in a pixel shader to calculate interference from spectral lights.

CIE Color Matching Functions

[Graph showing CIE color matching functions with curves for different color spaces.]