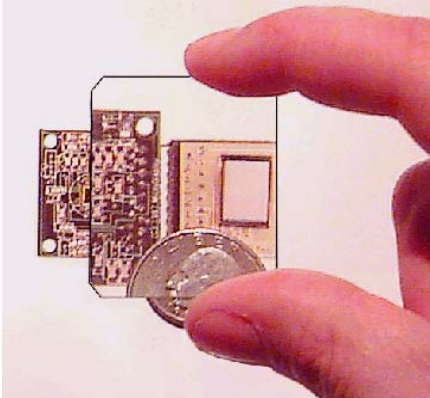


## Microstructured Optics for Microdisplays



Fresnel objective lens magnifying a microdisplay

There are new families of transmissive and reflective microdisplays, which represent a whole new set of applications for microstructured optics. Depending on the application, light from an LED or other source is distributed over the display using a miniature backlight or frontlight architecture. In many applications (cell phone, cameras, etc.) the display must be magnified, but size and weight of the optical system must be minimized.

The circular Fresnel lens pictured above, is a very fine pitched ( $\sim 0.1$  mm), high quality objective lens suitable for microdisplay magnification as shown. This lens is aspherically corrected for minimal distortion.

Further, light is often polarization sensitive, which means that birefringence is undesirable. Our specialized manufacturing processes ensure very low stress during all manufacturing cycles.



Cellular Phone with microdisplay

Specialized coatings (including mirror, hot mirror and AR coatings) and surface treatments (including Moth-eye Antireflective Microstructure<sup>®</sup>) are also available to enhance the performance of optics used in microdisplay applications.

Applications for microstructured optics in microdisplay applications include:

- novel front light and backlight architectures
- one-piece collimating diffusers
- very small optics
- lightweight, thin objective lenses