



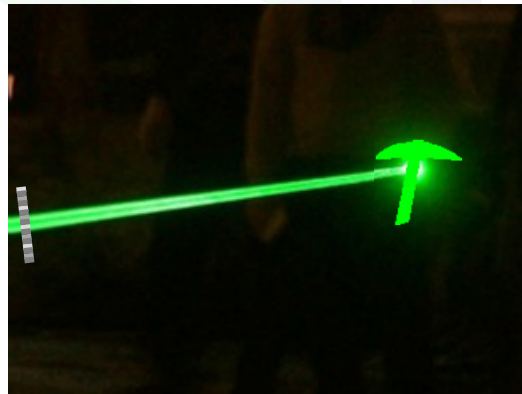
Computational Science:
Computational Methods in Engineering

Design of Kinoforms



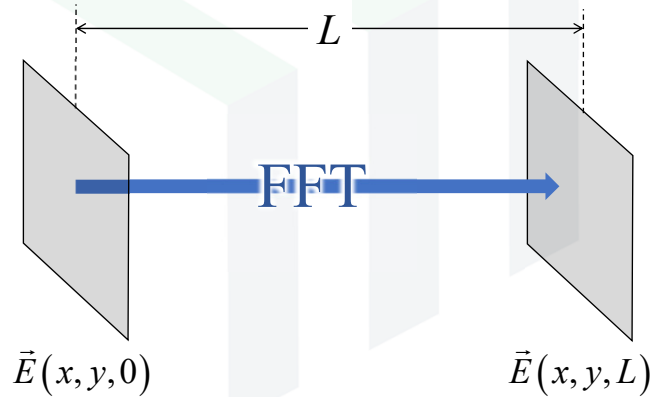
What is a Kinoform?

A kinoform is a diffraction grating that forms a patterned image when a coherent beam of light is shined through it.

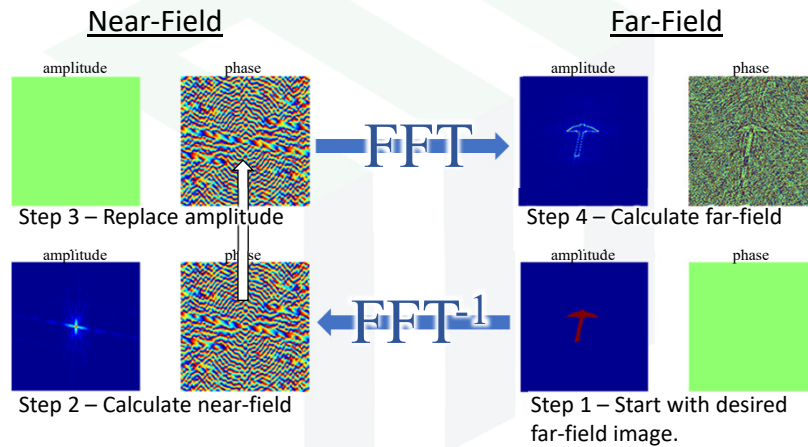


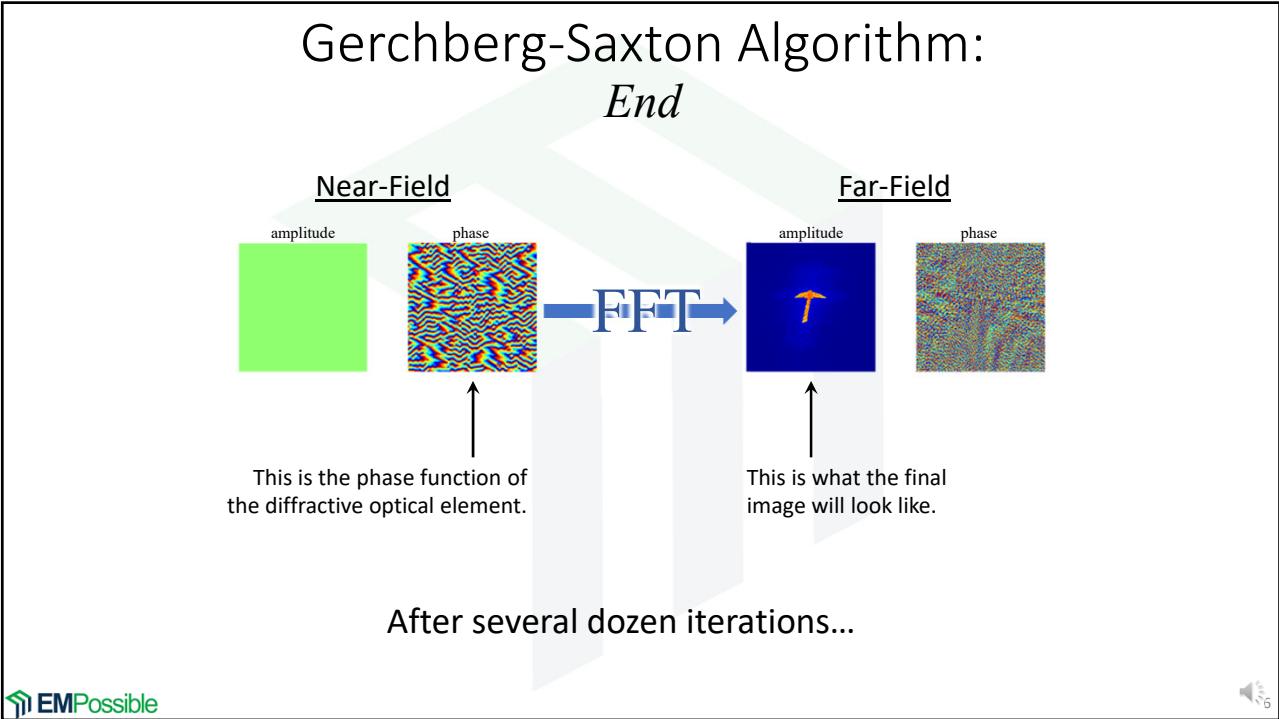
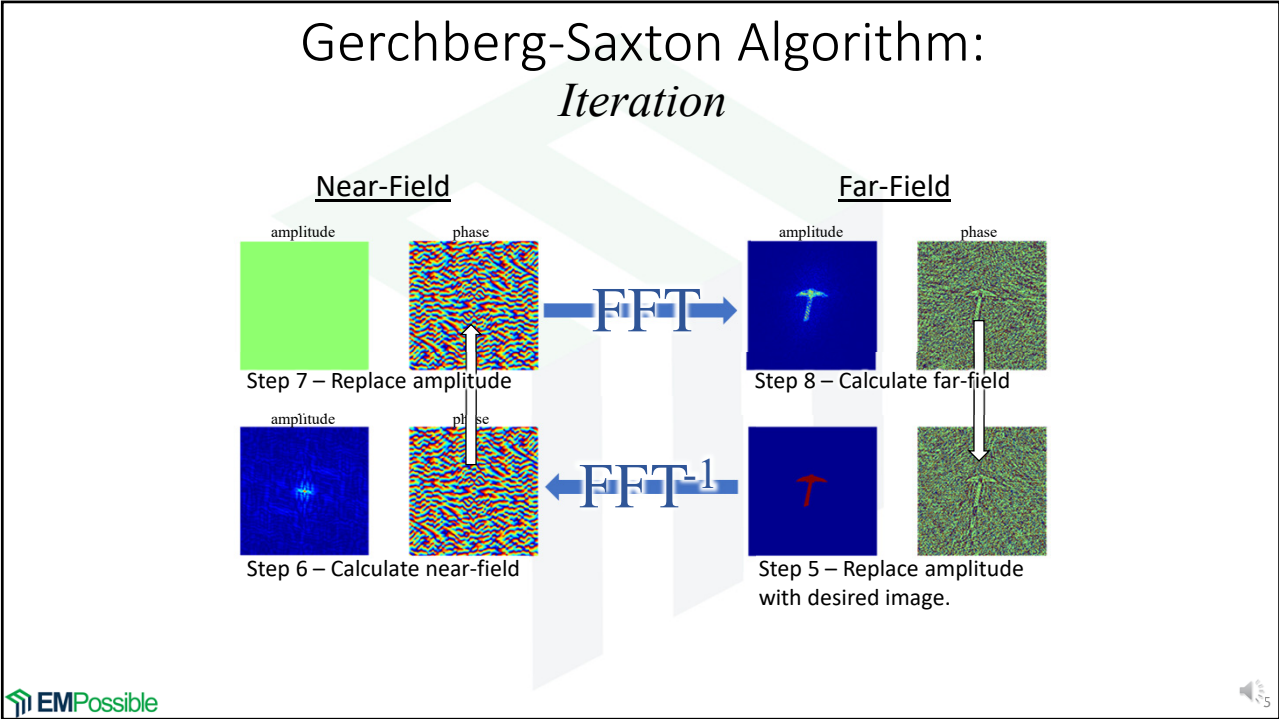
Near-Field to Far-Field

After propagating a long distance, the field within a plane tends toward the Fourier transform of the initial field.

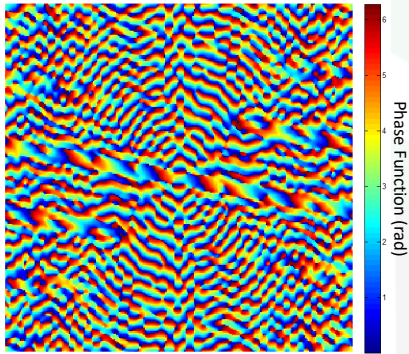


Gerchberg-Saxton Algorithm: *Initialization*

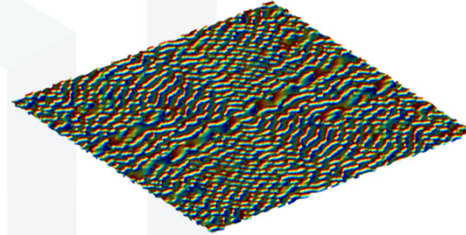




The Final Kinoform



Phase function as calculated by the Gerchbert-Saxton algorithm.



A surface relief pattern is etched into glass to induce the phase function onto the beam of light.

This can also be accomplished with an amplitude mask fabricated in a high-resolution laser printer.