



Phase Controlled Magnetic Mirror for Wavefront Correction

Description

This technology allows electrical modification of the reflected wavefront resulting in a “deformable mirror” that can be used for wavefront control. More specifically, it allows the modification of the incident wavefront for the purpose of correction of fabrication and alignment induced wavefront errors at the system level.

In a magnetic mirror, a patterned nanowire is fabricated over a metallic layer with a dielectric layer in between. Oscillation of the electrons in the nanowires in response to the magnetic field of incident photons causes a re-emission of photons and thus operates as a “magnetic mirror”. By controlling the index of refraction in the dielectric layer using a local applied voltage, the phase of the emitted radiation can be controlled, resulting in the “deformable mirror”.

Features and Benefits

- This device operates with no moving parts and can modify the phase of incident light over many spatial scales.
- Potential advantages of the device include a higher degree of wavefront correction accuracy at increased spatial resolution.
- This is particularly applicable to programs requiring extreme wavefront correction (nanometer or below).

Applications

This type of device would have many commercial imaging applications and could be the basis of new innovations in imaging and communications.

For More Information

If you are interested in more information or want to pursue transfer of this technology, GSC-16008-1, please contact:

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