Multi-Zone Diffractive Mask for Fine Control of Light Amplitude and Phase

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Title: Diffractive Optical Element for Blocking Light

Invention: The invention is a mask that can be used in an optical setup to diffract an amount of light based on wavelength. The mask is placed within the focal plane to solve the size-chromaticity problem by using this phase technique. This will achieve better resolution and high start to planet contrast.

Background: In the study of the Sun’s corona, light from the central portion of the sun needs to be blocked while the light of study needs to be transparent. A coronagraph achieves this. In addition, exoplanet finding is extremely popular but is also negatively affected by unwanted starlight. Masks that diffract light at certain wavelengths can help detect planets previously hidden by starlight.

Applications:

- Astronomy
- Dark field illumination for Microscopy

Advantages:

- Ability to diffract light at certain wavelengths for a given diameter

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