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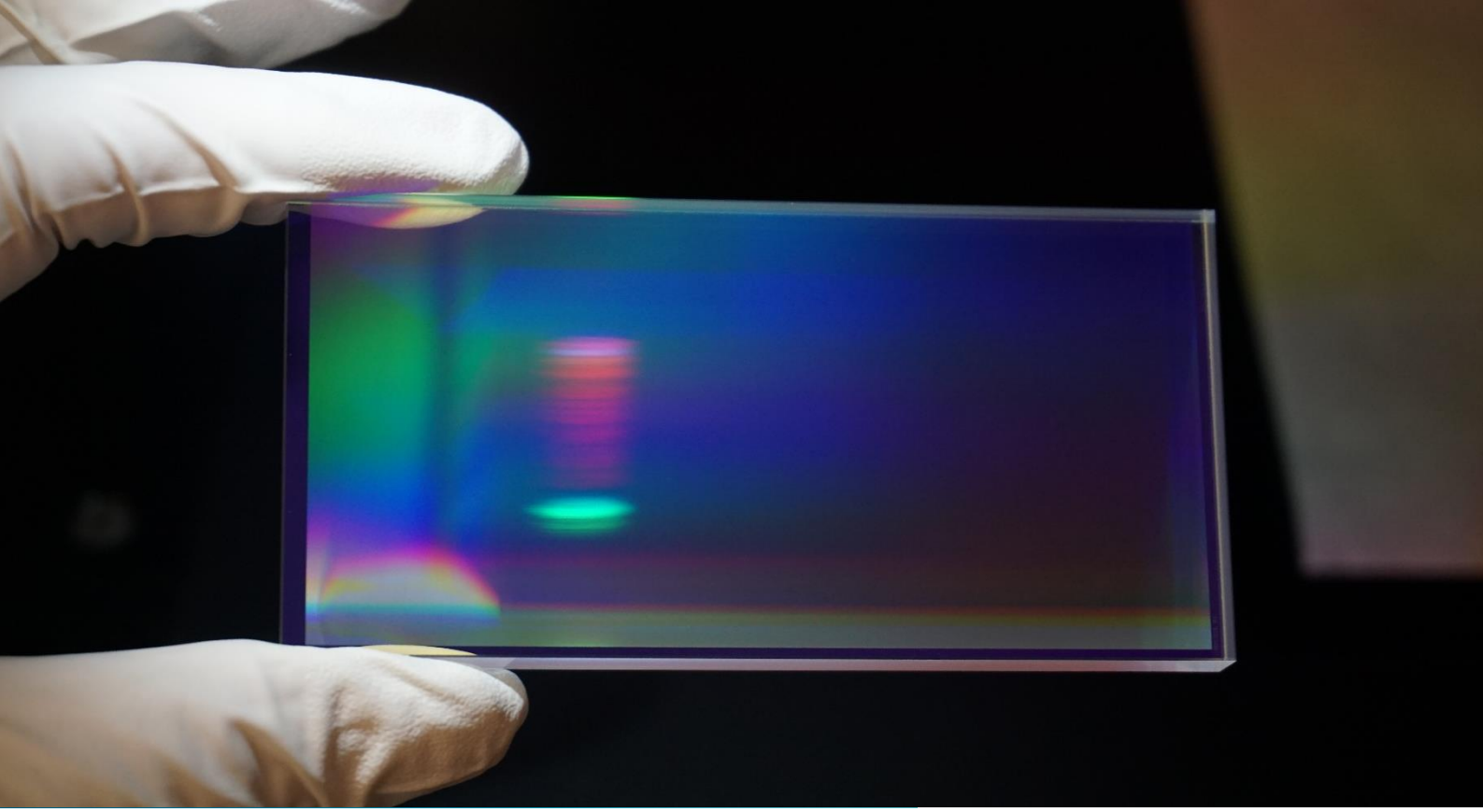
Diffraction gratings for Spectral Beam Combining

Demanding applications. Customized solutions.



Cover: Transmission grating with clear aperture of 134 mm x 107 mm

Top: Reflection grating with clear aperture of 72 mm x 35 mm

Description

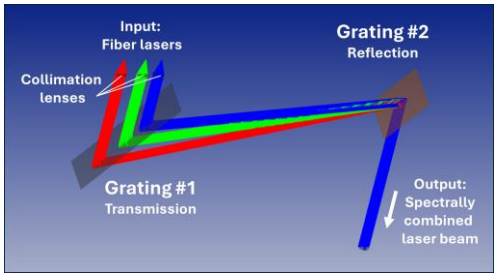
Customized diffraction gratings for applications in spectral beam combining (SBC). Design optimization is offered for the gratings or the full SBC-unit. The gratings are fabricated with lithographic technologies and characterized with respect to their optical parameters.

Parameters

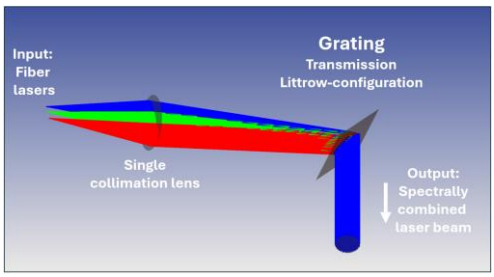
- Reflection (R) or Transmission (T)
- Line density: up to 3500 L/mm (depending on central wavelength)
- Polarization: TE, TM, unpolarized
- Central wavelength: 266 – 2100 nm
- Bandwidth: 20 – 100 nm
- Angle of incidence: Littrow preferred
  < ±5° off Littrow (R)
  < 7°conical angle
- Efficiency: >95% over bandwidth unpolarized
  >97% over bandwidth
  >99% peak
  polarized (TE or TM)
- Laser power: > 100 kW (cw)
- Element size: up to 275 x 120 mm² or 200 x 200 mm²
- Substrate material: Fused silica

Service / technology

- Grating design
- Full system design (SBC-unit)
- Lithographic wafer-level processing:
  - Electron beam lithography
  - Reactive ion etching
- Characterization:
  - Diffraction efficiency
  - Wavefront error
- Dicing / machining of grating elements
- Back-side anti-reflection coating (T)



Configuration using two gratings.



Configuration using only one grating.

Contact

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