

AT A GLANCE

Micro optical elements for realizing optical functions on HHI's micro optical bench or other hybrid integration platforms.



Micro optical elements

- GRIN lenses for generating
 - Parallel beams
 - Focussed beams
- Free space optical elements
 - Isolators, circulators
 - NLO crystals
- Thin Film Filter Elements
 - High-pass / low-pass filters
 - Polarization handling (PBS)

Applications

- Quantum technology
 - QRNGs, BB84 transmitter
 - Squeezed and heralded light sources
 - DV-QKD / CV-QKD TRx
- Laser technology
 - Isolators, circulators, NLO crystals
 - On-chip wavelength meters
 - $\lambda/4$ wave and $\lambda/2$ wave plates

Technical Background

Low-cost micro optical elements (GRIN lenses, free-space optical elements, TFFs) for automated assembly on HHI's compact micro optical bench or other hybrid integration platforms.

References

International R&D projects

PHOENICS
 POETICS
 POLYNICES
 QSNP
 Qu-Test / Qu-Pilot
 SPRINTER

TERA 6G
 TERAMEASURE
 TERAWAY
 (funded by EU commission)

National R&D projects

PolyChrome Berlin
 PoLiSiQ
 QuNET
 Silhouette
 VOMBAT
 (funded by BMBF)



Crispin Zawadzki
Hybrid Integration and Sensing

Phone +49 31002 624
 crispin.zawadzki@hhi.fraunhofer.de

Fraunhofer Heinrich Hertz Institute
 Einsteinufer 37, 10587 Berlin
 Germany

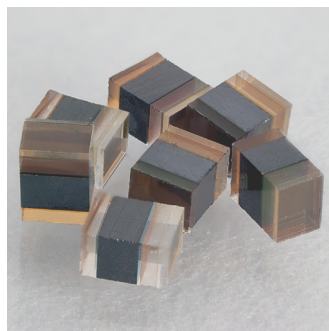
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Grin Lenses

Grin Lenses

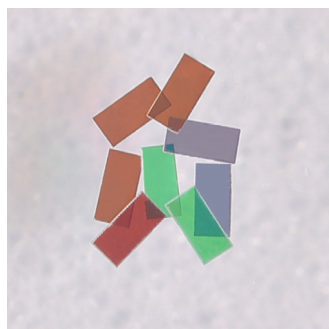
- 125µm diameter
- Customized design
- AR/HR coating optional



Isolator

Isolator

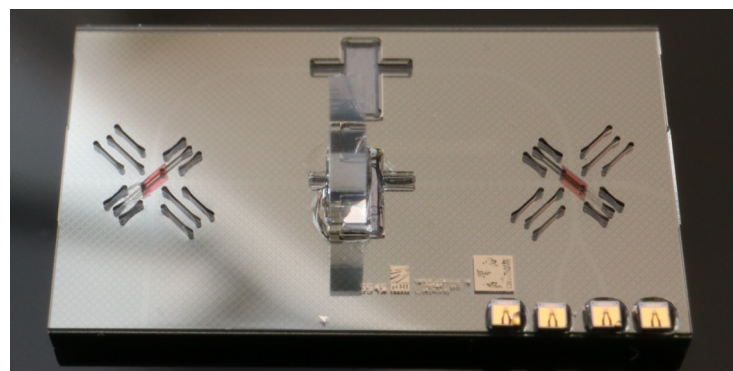
- 50 dB isolation (@ 1550nm wavelength)
- Size: 1mm³



Thin Film Filter (TFF)

Thin Film Filter (TFF)

- Thickness 10-30µm
- Size: 0,5mm²
- customized design



Micro optical bench PolyBoard