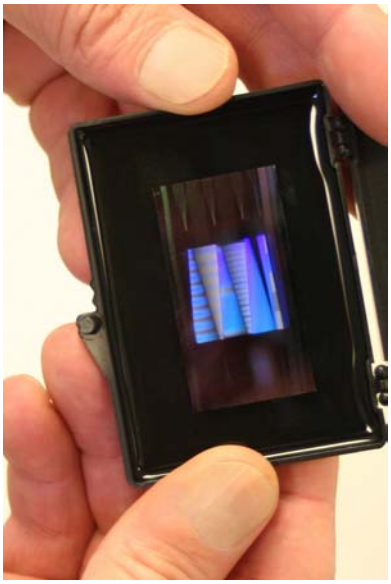
Integrated Holographics

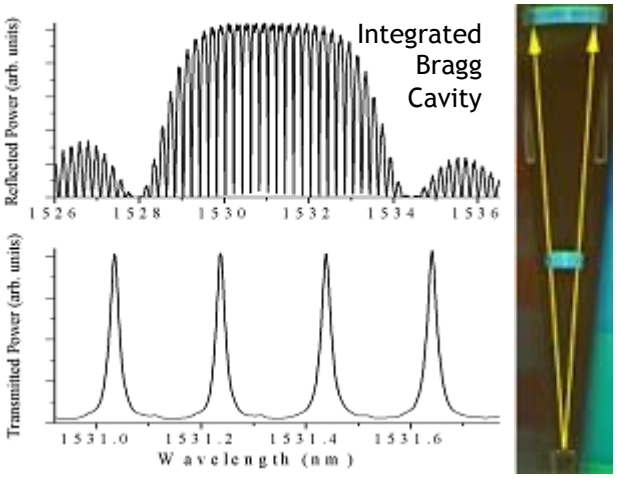
Crafting light for the Information Age

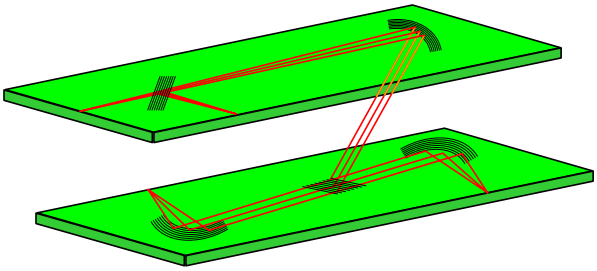
LightSmyth offers custom designs harnessing the full power of planar volume holography to filter and route signals within slab waveguide integrated photonic circuits. Computer-designs implemented through laser written reticles and modern DUV-stepper-based photoreduction lithography provide breakthrough pathways to fully distributed photonic integration.

Features:

- Arbitrary pixelated holographic structures with cm-scale spatial coherence and 200-nm feature size
- Diffraction-limited in-plane imaging, collimation, and signal focusing with flexible mode transformations
- Single- and multi-mode integrated reflective resonators (3 pm spectral resolution)
- Arbitrary phase and amplitude apodization
- Out-of-plane coupling for optical interconnects
- Coherent chip area up to 25x33 mm for monolithic integration of multiple filtering and routing structures
- Volume fabrication using state-of-the-art semiconductor fabrication tools







Ability to efficiently couple out-of-plane enables LightSmyth structures to be used for interconnect and on-chip routing solutions.

Applications

- Free-Space Optics On-a-Chip
- Integrated Bragg Resonators
- Multiplexing
- Optical Interconnects
- Polarizers
- Sensors
- Security Encryption

Special Applications,

Custom Designs

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