

Volume Bragg Gratings (VBGs) for Quantum Optics

Available wavelength range: 600-2500 nm

Standard Wavelengths: 780; 795; 852; 894 nm

Standard Bandwidths: 10; 25; 50 GHz

Diffraction Efficiency: > 95%

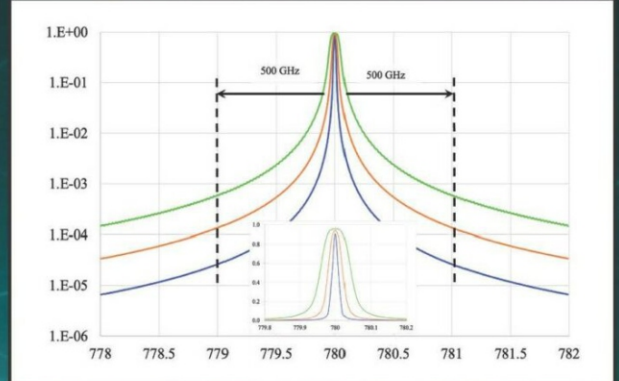
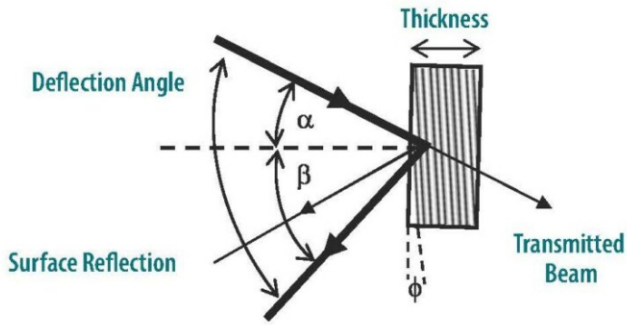
Unmatched side-lobes suppression: > 50 dB

Parameters of 25-GHz Filter:

Spectral Bandwidth: <25 GHz;

Efficiency: >92%;

Attenuation: > 30 dB at >150 GHz shift

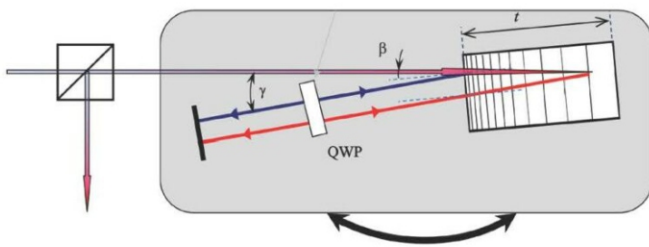


Spectral Shape of Reflecting VBG Filters with Bandwidth: 10 GHz; 25 GHz and 50 GHz

Chirped Bragg Gratings (CBGs) for Qubit Control

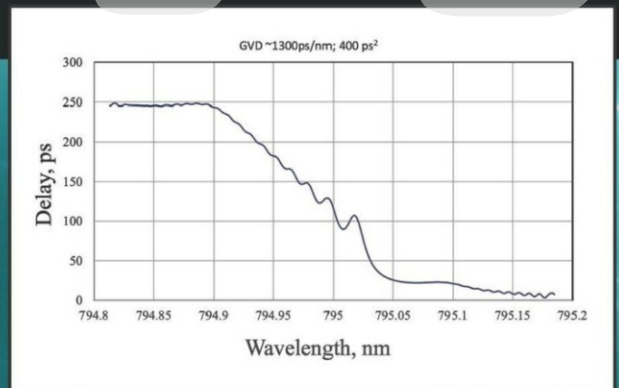
Extremely Large Dispersion 800 ps^2 enables effective and fast amplitude modulation

Spectral Range: 530-2500 nm; High Efficiency > 95%; Wavelength Tunable



Schematic Diagram of CBG deployment for Qubit Filtering and Control

Group delay dispersion of Chirped Bragg grating (CBG)



PTR glass based highly dispersive CBGs enabled passively stable, efficient, method of fast amplitude modulation compatible for high power laser sources. [H. Levine et al. "Dispersive optical systems for scalable Raman driving of hyperfine Qubits," *Phys. Rev. A* 105, 032618 (2022)]



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