# Silicon Photonic Bragg-Grating add-drop filters and multiplexers using UV lithograpy

**Jonathan St-Yves, Sophie Larochelle, and Wei Shi***

*Centre d'optique, photonique et laser (COPL) and Dpartement de gnie lectrique, Universit Laval, 2375 rue de la Terrasse, Qubec (Qubec), Canada, G1V 0A6*

**wei.shi@gel.ulaval.ca*

**Abstract:** Next generation short reach communication systems require high-performance and low cost optical filters for wavelength division multiplexing. We measured performance of add-drop filters fabricated using a CMOS compatible process. C-band and O-band

Novelty:

1. Rib structure
2. Small features at 1310
3. Large BW and low sidelobes with apodization
4. 1550
5. WDM 4 channels and 2 channels
6. optical litho

## 1. Introduction

Challenges and state of the art

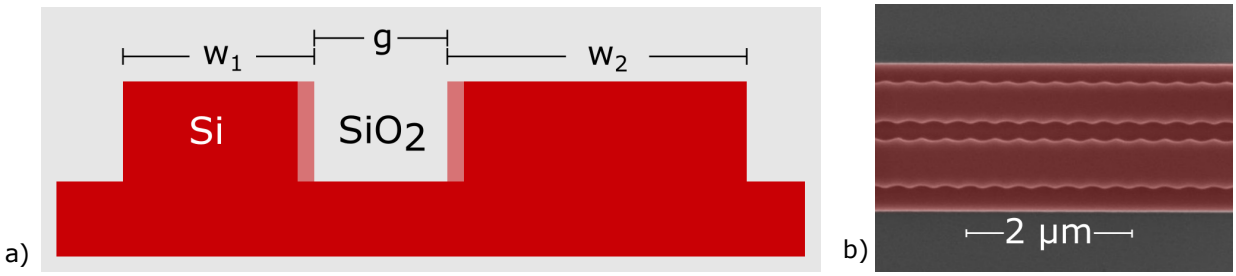


Fig. 1. Schematic cross-section and colored microscope top view of the grating (a) The contra-directional coupler is made of two silicon waveguides of different widths $w_1$ and $w_2$ with an average gap $g$ inbetween them. The gap varies along the propagation axis. (b) SEM image shows the shape of the corrugations.

### Acknowledgments

We acknowledge CMC Microsystems for the software and the fabrication subsidy. The authors acknowledge the Natural Sciences and Engineering Research Council of Canada for funding this research. This work is part of the SPEED research project (Silicon Photonic Electrically Engineered Devices) funded by NSERC (RDCPJ438811-12), PROMPT (PJT-2011-17), and TeraXion.