



## **METHOD FOR POST-FABRICATION TRIMMING OF SILICON PHOTONIC INTEGRATED CIRCUITS USING MULTI-SHOT LASER IRRADIATION**

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### **HIGHLIGHTS**

- Increase manufacturing yield and lower production costs of Silicon Photonic Integrated Circuits
- Quickly and easily correct fabrication errors.

### **OPPORTUNITY**

The University of Alberta researchers have developed a method for post-fabrication correction of manufacturing errors in Silicon Photonic Integrated Circuits (SiPICs) using single-shot or multi-shot femtosecond laser irradiation. The main advantages of post-fabrication techniques using laser pulses include that the operations can be conducted rapidly in the ambient environment using relatively simple laser materials processing setups. This allows fabrication errors in SiPICs to be quickly corrected, increasing manufacturing yields and lowering production costs.

This multi-shot femtosecond laser surface modification technique results in permanent tuning to obtain the desired resonance wavelengths for silicon microring resonators and proper operating parameters for other components in SiPICs. This method offers a low-cost solution with exceptional scalability that can effectively tackle current challenges, enabling SiPIC technology to reach its full potential when successfully commercialized.

### **COMPETITIVE ADVANTAGE**

- No additional fabrication steps required
- No continuous power supply required
- Quick & Cost-effective Method
- Any size of circuit can be tuned
- Scalable to mass manufacturing of SiPICs

### **IP STATUS**

- Patent pending



# UNIVERSITY OF ALBERTA TECHNOLOGY TRANSFER SERVICES

## Publication

- [Multi-shot near-infrared femtosecond laser tuning of silicon microring resonators](#)

## INVENTOR

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## MORE INFORMATION

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