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Towards high-Q integrated polymer ring resonators

Polymer photonics is a growing research area with many potential applications in sensing and communication technologies. Polymers can be customized for specific applications, are relatively cheap, and are environmentally friendly and biocompatible. We are researching polymer ring resonators for integrated photonic chips for various applications. We need to develop a fabrication process that yields high-Q resonators. To achieve this, we have switched from glass substrate to Si wafers, allowing easy optoelectronic integration. In addition, two waveguide-resonator gap control methods are tested. In this work, we compare the free spectral range, the Q factors, and the overall quality of the fabricated chips.

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