Chapter 3
SOI Microring Resonator Sensor Integrated on a Fiber Facet

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Abstract The application of optical fiber technology for sensing has undergone tremendous growth over the last years. Its use for imaging hard-to-reach locations and its property to conduct light to a remote convenient location make of it a suitable tool for in vivo sensing applications, such as endoscopy. Here, we present an optical fiber probe sensor for label-free biosensing based on SOI ring resonators. We describe the operating principle of the device, the technology used to integrate a Silicon-on-insulator (SOI) chip on a fiber facet and discuss some experimental results.

3.1 Introduction

Optical fiber sensors have been established for half a century now during which time they have stimulated a great deal of research and useful practical engineering outcomes. The property of fibers to conduct light to a remote, convenient location makes them ideal for in vivo biosensing applications. Biosensing is a technique

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