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Nota di contenuto	In-fiber Integrated Optics Laboratory -- Fiber Discrete Optics Laboratory -- Laboratory for Nanophotonic Structures and Integrated Devices on Fiber End facets -- Microfluidic fiber and its sensing laboratory -- Miniature Function-Integrated Devices based on Optical Microfibers -- Lab in Microstructured Optical Fiber -- Fiber-integrated Optofluidic Laser Laboratory -- Fiber Optic Surface Plasmon Resonance (FO-SPR) Sensing Laboratory -- Tilted fiber Bragg grating sensors -- Tapered optical fiber sensing laboratory -- Sensing Lab based on Fiber Bubble Microcavity.
Sommario/riassunto	This book explores the technical foundations of constructing diverse laboratories on optical fiber. In recent years, microstructured-based optical fiber devices and sensors have emerged as a rapidly advancing area within the field of optical fiber sensing technology. The concept of creating a laboratory on optical fiber has been inspired by advances in

micro-structured fiber optics. Given the natural existence of optical waveguide channels within fibers, it is feasible to integrate a wide range of materials—such as inorganic, organic, biological, and nonlinear optical substances—into or onto the fiber's end face or side. This integration facilitates the interaction between light and matter, leading to measurable optical outcomes through the fiber's optical channel. The rapid evolution of this concept is driven by the ease with which strong interactions can be achieved between light and matter at the micro-nano scale within the fiber, making it an ideal platform for experiments in lightwave microscale physics, photochemistry, and the interaction between light and both biological and microbial materials. The fiber optics laboratory thus offers a compelling stage for interdisciplinary research endeavors. This book serves as a comprehensive and systematic introduction to the core techniques involved in establishing various laboratories on fiber, complemented by practical examples that illustrate the purpose, methodology, and technical approaches to developing fiber-based laboratories. It stands as an invaluable reference for students and researchers intrigued by the cutting-edge advancements in fiber optic technology.