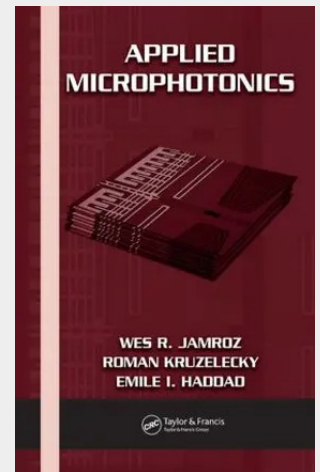


Applied Microphotonics

As the limits of electrical performance come within sight, photons are poised to take over for the electron. But the search continues for the materials, topologies, and fabrication technologies capable of producing photonic devices at a reasonable speed and cost. Taking a fundamental look at the development of photonic technology from the macro- to the microscale, Applied Microphotonics introduces the major principles and technologies underlying the field. Following an overview of historical and commercial driving forces, the authors briefly review the underlying physics, emphasizing the practical and design implications for photonic systems. This general discussion lays the foundation for the remainder of the book, where the authors first introduce the photonic node and then discuss each subsystem in detail, including transmitters, couplers and switches, multiplexers and demultiplexers, receivers, amplifiers, and compensators. The following chapters explore new technologies such as photonic band gap structures, materials and fabrication processes, integration methodologies, and advanced devices such as photonic computers. The book concludes with a brief introduction to quantum photonics and a forward look at potential directions of photonics. Applied Microphotonics encapsulates the recent push toward all-optical networks and devices with an applications-oriented perspective. It is ideal for newcomers to the field as well as anyone curious to know how photonic technology can benefit their own field.



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