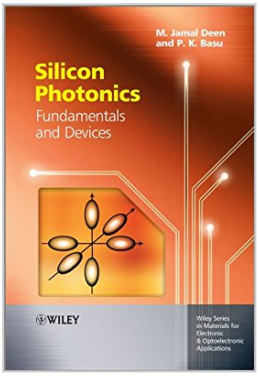

Silicon Photonics: Fundamentals and Devices

By M. Jamal Deen, Prasanta Kumar Basu

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The creation of affordable high speed optical communications using standard semiconductor manufacturing technology is a principal aim of silicon photonics research. This would involve replacing copper connections with optical fibres or waveguides, and electrons with photons. With applications such as telecommunications and information processing, light detection, spectroscopy, holography and robotics, silicon photonics has the potential to revolutionise electronic-only systems. Providing an overview of the physics, technology and device operation of photonic devices using exclusively silicon and related alloys, the book includes:

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- Quantum Wells, Wires, Dots and Superlattices
- Absorption Processes in Semiconductors
- Light Emitters in Silicon
- Photodetectors , Photodiodes and Phototransistors
- Raman Lasers including Raman Scattering
- Guided Lightwaves
- Planar Waveguide Devices
- Fabrication Techniques and Material Systems

Silicon Photonics: Fundamentals and Devices outlines the basic principles of operation of devices, the structures of the devices, and offers an insight into state-of-the-art and future developments.

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Editorial Review

From the Back Cover
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