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Advances in photonic metamaterials and sensing architectures

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Subwavelength materials have become a fundamental tool for silicon photonic design, enabling devices with unique performance characteristics. We will briefly review some fundamentals here and will then discuss some of the latest advances in the field, with a particular focus on polarization handling. Furthermore, we will discuss advances in integrated optical sensing, addressing both fundamental issues such as the optimization of detection limits, as well as state-of-the-art results with novel sensing architectures. We will also discuss which benefits subwavelength structures can provide in such sensors.

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