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### **Monolithic Integration of Photonic and Electronic Circuits in a CMOS Process**

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We present our approach to a low-cost, highly scalable opto-electronic integration platform in silicon. We have developed a process in a commercial CMOS foundry that enables tightly integrated photonic devices and electronic circuits. The device library includes optical and opto-electronic components as well as electronic circuits. In this talk, we detail the performance of the building blocks and highlight the performance trade-offs encountered in integrating different functions on the same chip. We describe an opto-electronic circuit design toolkit, which is modeled after the standard electronic design flow and builds on commercial circuit design tools. The design flow includes automated design rule checking and layout-versus-schematic checks covering all types of circuit elements. As an example, we detail the design of a multi-channel transceiver chip with 10 Gbps/channel optical data transmission speed and report on its performance.