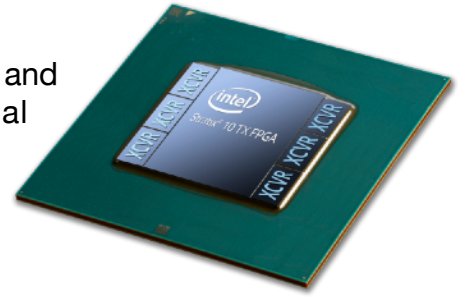
Circuits and Devices for Optical Communications

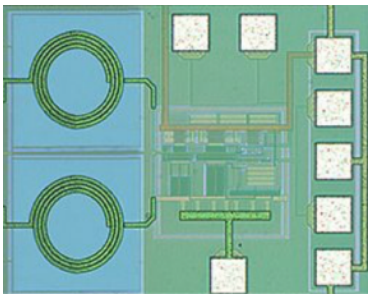
Number of students: 2 to 4
Estimated period of project: 1year (Senior Project)

Description:
The goal of this project is to design high-performance and high-speed circuits and devices for modern optical communication systems. Such communication links are supposed to transfer data between different processor units in a high-performance computing system, and thus improve their processing power.



Serial data communication is a very common way of moving data within processors, or between different cores of a processor and memories. Processing power of the new computers depends highly on how fast the data can be moved between different units of a multi-core system. Because of that, communication data rate has been continuously increased. The next generation serial data communication lanes are supposed to carry more than 112 Gb/s/lane. As a conclusion, transferring data over fiber optics has became very attractive.

Students involved in this project, will learn about fundamental of modern optical communications, optical devices and structures (such as optical detectors, modulators, waveguides, among others), design of circuits that can operate with optical devices, optical system architectures, and many more theoretical and practical topics related to these type of systems. This project will be a very valuable experience for the future carrier of students, specially those who want to continue in the field of communications, optical systems, and integrated circuit design.



Background: Students with a good background on circuit and device design are encourage to apply. Also, students need to be self motivated and active. Good knowledge on relevant Software Tools (e.g. Matlab, Python, SPICE) is a plus.

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