

# Design of a High-Speed Hybrid Integrated Si-Photonic Optical Link

**Mayank Raj**

Xilinx

**Location: EEB132 & Zoom**  
**2:00 pm – 3:30 pm, Friday, Nov. 19<sup>th</sup>, 2021**

Meeting ID: 947 0191 2463 Passcode:138956

<https://usc.zoom.us/j/94701912463?pwd=eW1KVmhuODFHdHpMemhQbTlIMEZ6Zz09>

**Abstract:** In this talk, we will discuss the design of an Electro-Absorption Modulator (EAM) based single-mode 50 Gb/s NRZ Si-photonic optical link in 16 nm FinFET technology. From Si-Photonic device details to its modeling, TX design, RX design, clocking, and measurements, we will cover all the important aspects of a high-speed optical link design. We will also look at requirements for the next generation optical transceivers and what it would take to meet them.

**Biography:** Mayank Raj received the B.Tech. degree from Indian Institute of Technology (IIT), Kanpur, India, in 2008, and the M.S. and Ph.D. degrees from the California Institute of Technology (Caltech), Pasadena, CA, USA, in 2009 and 2014, respectively, all in electrical engineering.

In 2014, he joined Xilinx Inc., San Jose, CA, where he is a Sr. Design Manager. He leads the design of high-performance mixed-signal integrated circuits for high-speed and low-power electrical and optical interconnects.

Dr. Raj is the recipient of the 2008 California Institute of Technology Atwood Fellowship and the 2015 CICC Best Student Paper Award. He holds 17 U.S. patents in the field of mixed-signal integrated circuit design. He is the chair of wireline technical program subcommittee at CICC 2022.



**Faculty Hosts:** Mike Chen, Hossein Hashemi, Manuel Monge, Constantine Sideris

**Student Organizer & Host:** Qiaochu Zhang ([qiaochuz@usc.edu](mailto:qiaochuz@usc.edu))