

Michelle Sander, Boston University

Title: Compact and Integrated Femtosecond Photonic Technology

Abstract: Femtosecond lasers and the development of frequency combs have revolutionized multiple fields like metrology, spectroscopy, medical diagnostics and optical communications. To enable wider adoption of the technology and new applications like optical sampling, optical arbitrary waveform generation or the calibration of astronomical spectrographs, multi-GHz repetition rate femtosecond devices with robust performance metrics, low cost and a compact footprint are highly desirable.

In this talk, different approaches to develop GHz mode-locked laser systems will be presented. Design aspects for constructing GHz fiber lasers with sub-200fs short pulses will be discussed. In order to scale the repetition rate into the multi-GHz regime, novel thermally tunable waveguide interleavers will be demonstrated. These technologies are then combined in a miniaturized, robust on-chip device that paves the way towards on-chip femtosecond photonic platforms.

Biography: Michelle Sander completed her PhD studies in the Department of Electrical Engineering and Computer Science at the Massachusetts Institute of Technology (MIT) in the Optics and Quantum Electronics Group in 2012. She received a diploma degree in Electrical Engineering from the Technical University of Braunschweig, Germany, and a Master of Science degree from the Georgia Institute of Technology. Dr. Sander is joining the Electrical and Computer Engineering faculty at Boston University in January 2013.