

Silicon Photonics for Optical Processing Unit



Speaker: Takanori Sato, Associate Professor
Hokkaido University

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Location: R205



Abstract:

Silicon integrated optical circuit, called Silicon Photonics, has received much attention because it enables faster and low-energy data transfer in conventional electronics. In the infrared band, Si is a transparent medium and forms the total internal reflection structure by surrounding SiO_2 , and thus silicon photonics has much compatibility with the CMOS platform. Recently, various types of optical computing devices based on silicon photonics have been reported. For overcoming the limitation of electronic computation performance, the harmonization of electronics and photonics is an important key. This time, the speaker will talk about the operation principle and application of the photonic full adder and the photonic matrix multiplier for optical communication as well as optical computing.

Biography:

Takanori Sato was born in Date city, Hokkaido, Japan, in 1992. He received his Ph.D. degree in the field of media and network technologies from Hokkaido University in 2018. He was a Research Fellow of JSPS from 2017 to 2019. He moved to the University of Hyogo as an assistant professor in 2019 and is currently an associate professor at Hokkaido University. His research interests include the theoretical and numerical studies of optical fibers and photonic circuits using the coupled-mode theory and the finite element method. He is a member of the IEICE, JSAP, OSA, and IEEE.