USC Viterbi School of Engineering
Ming Hsieh Department of Electrical Engineering

Ming Hsieh Institute Seminar Series
Ming Hsieh Department of Electrical Engineering

Nano Science & Technology

Energy-Efficient Integrated Photonics for High-Performance Computing and Beyond

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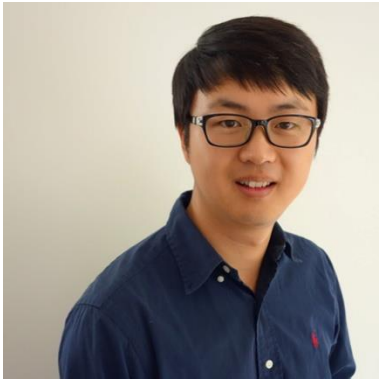
Date: Thursday, Nov. 14, 2019
Time: 11:00 am
Location: EEB 248

Abstract: Abstract – Since the world first petascale computing system debuted a decade ago, Exascale computing (a billion billion calculations per second) became the new Himalayas in high performance computing (HPC) world. In the end of the Moore's Law era, photonics plays a critical role to enable such a powerful machine with novel architecture and system implementation, unprecedented performance prowess, and affordable capital and operation cost. HP Labs have devoted over a decade of R&D to develop world leading HPC systems and photonic interconnect solutions. In this talk I will discuss our most recent fully integrated silicon photonic platform which is capable of providing nearly all performance metrics (energy efficiency, bandwidth, latency, cost, etc.) for HPC applications. It serves well as an ideal platform for emerging applications such as neuromorphic computing, free-space optical communications, etc. I would also like to elaborate our vision to build an open integrated photonics ecosystem to better prevail the technical challenges and create more business opportunities.

Biography: **Di Liang** is a senior research scientist at Hewlett Packard Labs in Hewlett Packard Enterprise (HPE). He is leading advanced III-V and silicon photonics research in HPE, and is currently a principal investigator for multiple US government funded R&D programs. Prior to joining HP Labs, he was a core researcher in the early stage R&D of the hybrid III/V-on-silicon photonic platform which has been commercialized by Intel and Juniper Networks (Aurrion) recently. His research interests include novel integrated photonics, heterogeneous and monolithic material integration, nanofabrication technology for communications, sensing, and neuromorphic computing, etc. He has authored and coauthored around 200 journal and conference papers with over 4500 citations, 5 book chapters, and was granted by 28 patents (each with multiple region filing) with another 55+ pending. He is a senior member of IEEE and a member of OSA and SPIE



Hosted by Prof. Han Wang, Prof. Chongwu Zhou, Prof. Stephen Cronin, and Prof. Wei Wu. Sponsored by Ming Hsieh Institute.