

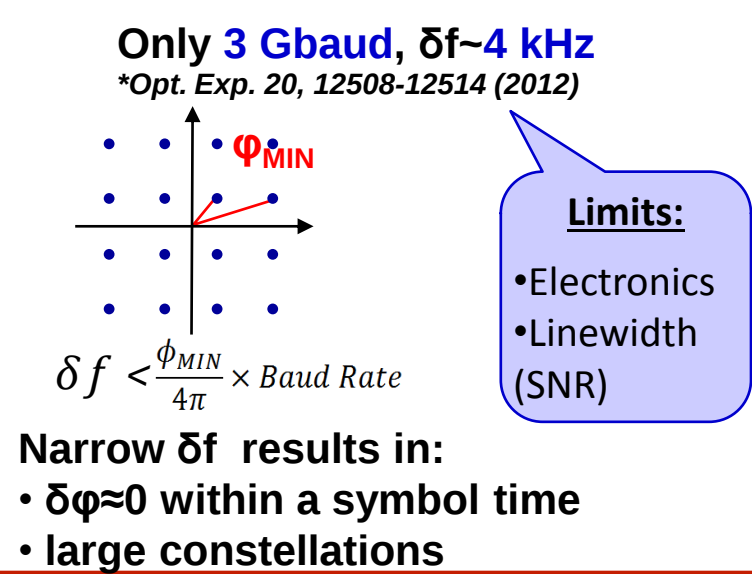
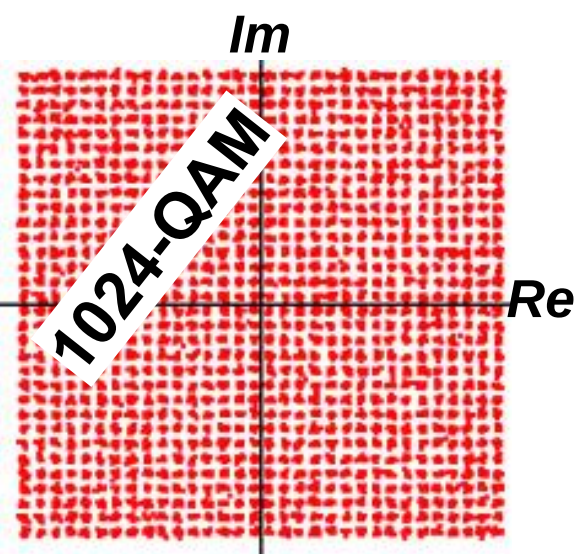
Reconfigurable High-Capacity Optical Transmitter

Mohammad R. Chitgarha, Salman Khaleghi, Amir M. Ariaei, Morteza Ziyadi, Ahmed Almainan, and Alan E. Willner

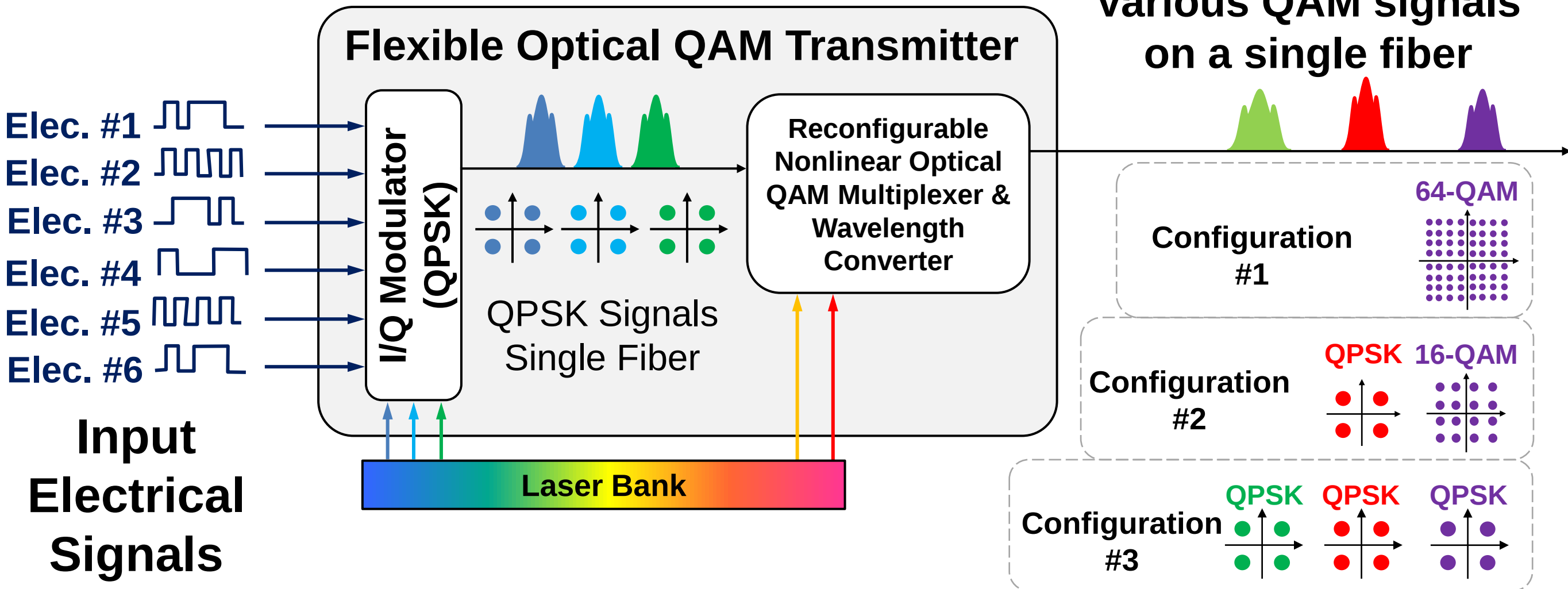
Electrical Engineering/Communication

Higher-Order QAM Generation

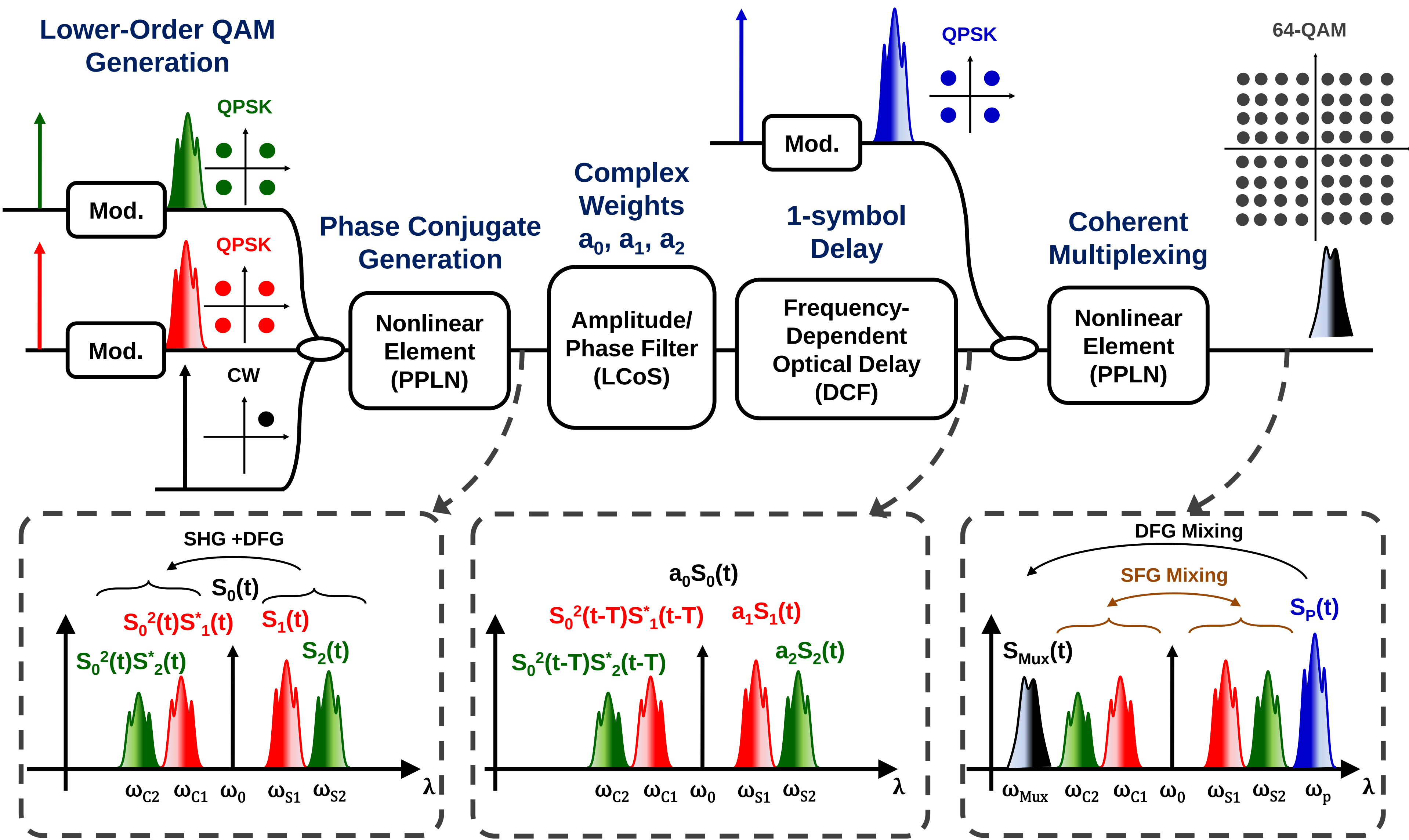
- The linearity and the speed of electronics limit the size of optical data constellations.
- Using existing DACs and RF amplifiers to generate extremely **high number of amplitude/phase symbols** at **high baud rate** is not efficient and cost effective.
- Optical nonlinear processes enable high-capacity transmitter and flexible bandwidth allocation.



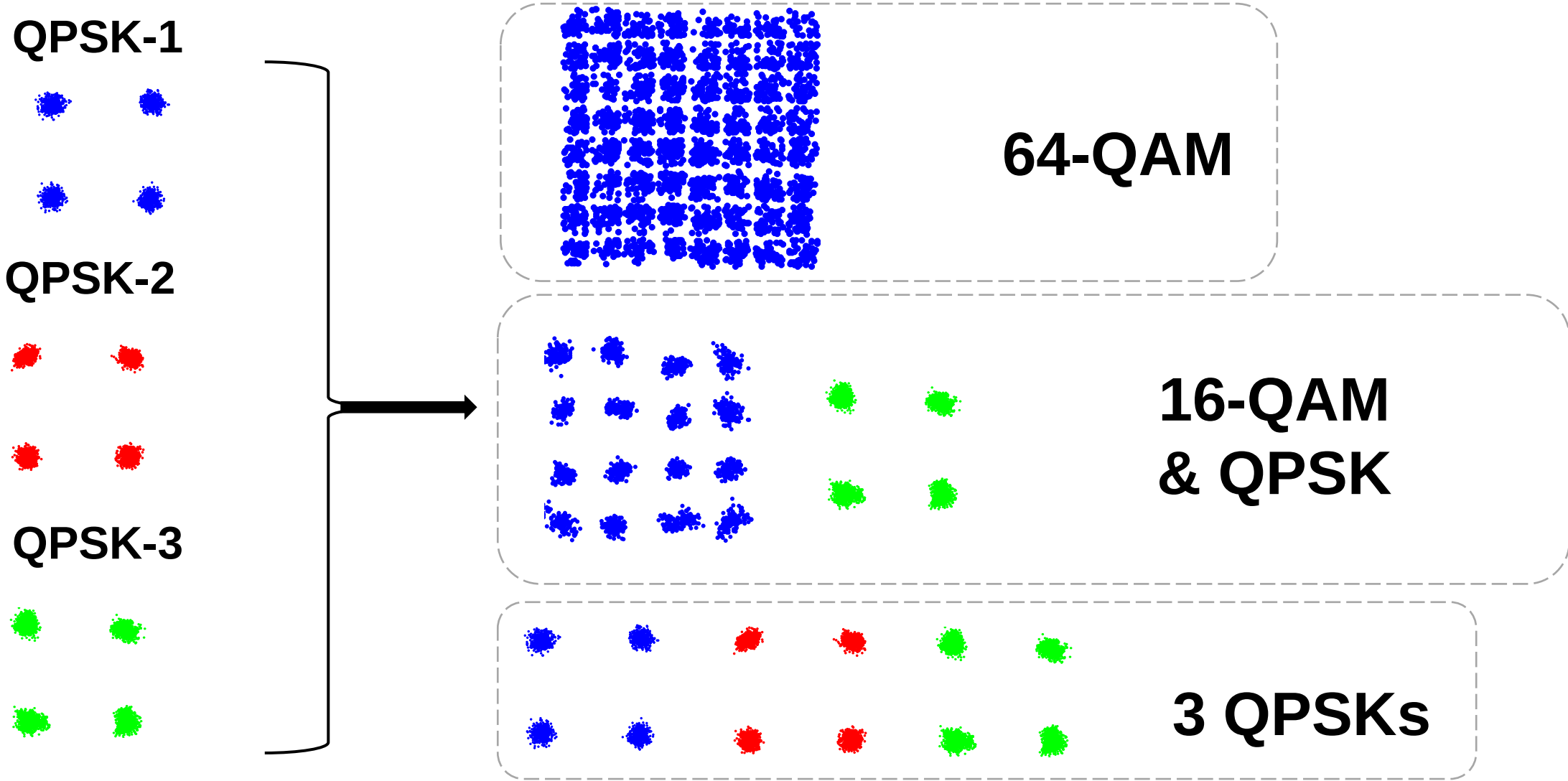
Reconfigurable and Flexible Optical Transmitter



Multiplexing of Multiple Lower-Order QAM Signals to a Single Higher-Order QAM

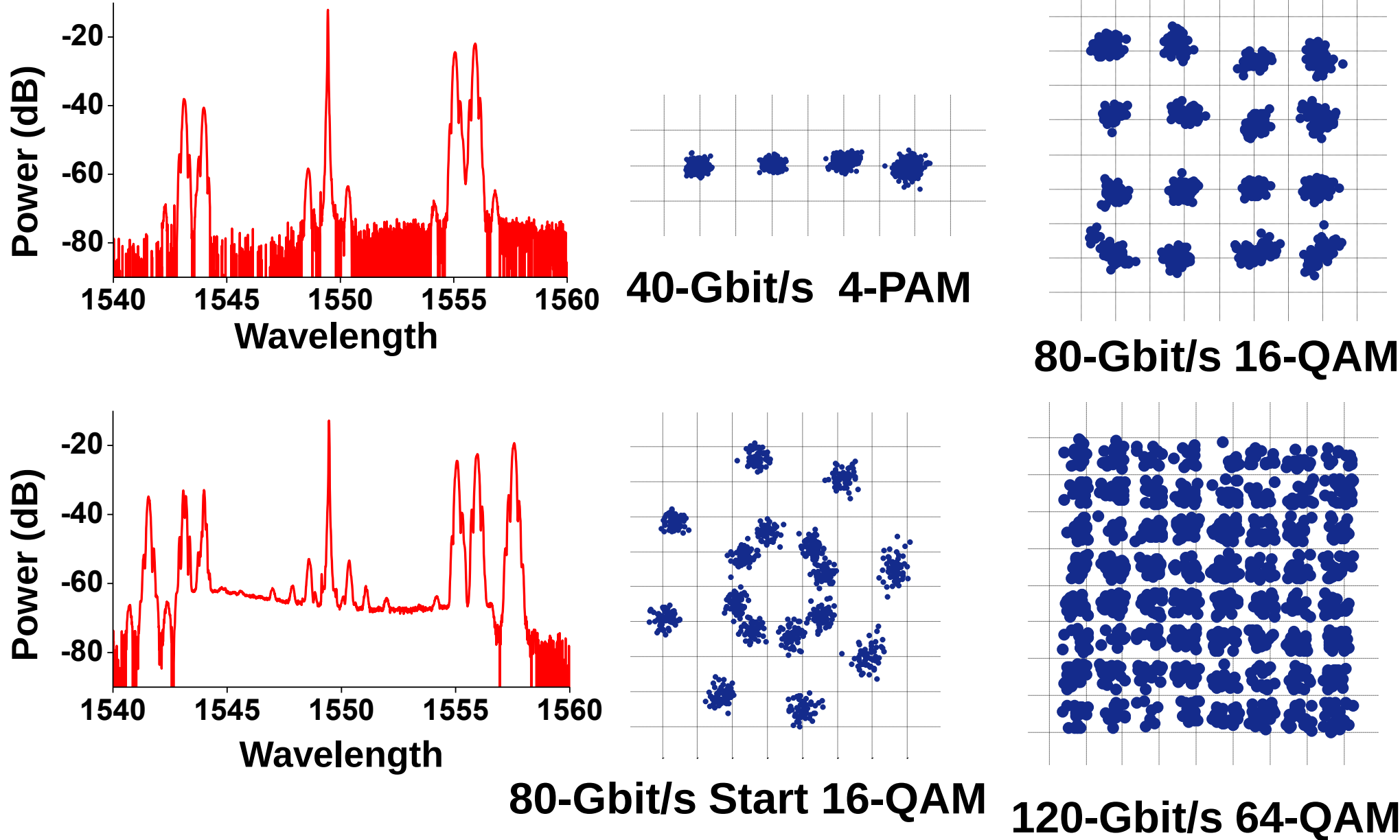


Flexible Bandwidth Allocation



M. Chitgarha, et al., ECOC 2012

Reconfigurable Optical Transmitter



M. Chitgarha, et al., OL 2013