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Scaling Optical Networking Capacity - Options and Solutions

Dr. Peter J. Winzer – Nokia Bell Labs (USA)

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Politecnico di Torino,

Corso Castelfidardo 30/A, Torino

Sala Conferenze SITI

Extrapolating long-term industry technology scaling trends and network traffic evolution into the coming decades reveals the need to significantly accelerate the evolution of optical interface rates and system capacities beyond current roadmaps.

As going to much higher carrier frequencies is not an energy-viable option, the only scalability path uses massive parallelism in the form of wavelength- and spatial multiplexing, leading to much needed "pre-log" capacity gains.

We will compare these gains to shorter-term logarithmic gains brought by SNR-improving, and discuss techno-economic aspects of parallel systems, highlighting integration options across all network elements that will allow our industry to continue its historic cost/bit and energy/bit reductions.

Dr. Peter J. Winzer is the director of the optical transmission subsystems research group in Nokia Bell Labs (USA). He is a Clarivate Highly Cited Researcher, the only one from industry in the Engineering category in 2015, a Bell Labs Fellow, a Fellow of the IEEE and the OSA, and an elected member of the US National Academy of Engineering. He received a Thomas Alva Edison Patent Award in 2017 and is the recipient of the 2018 OSA John Tyndall Award.

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