



COLLOQUIUM

You are invited to attend a lecture by

הנכם מוזמנים להרצאה של

Peter Winzer

Bell Labs Nokia - US

בנושא:

From scaling disparities to integrated parallelism: Space-division multiplexing in fiber-optic communications

The evolution of network traffic and communication technologies over the past 10+ years and their projections into the coming 10+ years reveal increasingly pronounced scaling disparities between technologies used to create and process data and technologies used to transport data. In core networks, we expect the need for 10+ Terabit/s transponders working over Petabit/s systems within the coming decade. However, with the help of digital coherent detection, advanced multi-dimensional modulation, shaping, and coding, these systems are now rapidly approaching recently established estimates for the Shannon capacity of the nonlinear fiber-optic channel. By 2020, leading-edge network operators will require capacities that are physically impossible to implement using conventional optical transmission technologies. Highly integrated spatially parallel optical transmission solutions (Space-Division Multiplexing, SDM) seem to be the only long-term viable path to overcome the looming optical networks capacity crunch. We discuss the implications of ultimately unavoidable spatial crosstalk in highly parallel SDM systems and examine how multiple-input-multiple-output (MIMO) digital signal processing, well established in wireless communications (albeit on a different set of boundary conditions), can be used to scale optical core networks. A look at information theoretic security enabled by SDM-based fiber-optic transmission systems rounds off our discussion.

The lecture will take place on Wednesday, 18/1/2017
at 12:30 in room 1003
Electrical Eng. Building
Technion City

ההרצאה תתקיים ביום רביעי, 18/1/2017
בשעה 12:30 בחדר 1003
בבניין הפקולטה להנדסת חשמל
קריית הטכניון

כיבוד קל יוגש לפני ההרצאה

