Title
High Capacity Fiber-Optic Transmission Systems

Introduction and Short description

Company: Bell Laboratories (Alcatel-Lucent)  www.bell-labs.com
Bell Labs has helped weave the technological fabric of modern society. Since its founding in 1925, technology from Bell Labs has shaped the ways people live, work and play. Over the past 80 years, the Bell Labs R&D community has made seminal scientific discoveries, created powerful new technologies, and built the world's most advanced and reliable networks:

- The Transistor (1947)
- Shannon’s Information Theory (1948)
- Laser (1958)
- Communications Satellites (1962)
- The CCD (1969)
- Digital Signal Processor (DSP) (1979)
- Optical WDM systems and networks (1990)
- First 100G Ethernet transmission (2005)
- Fiber-optic capacity limit (2010)

Project:
In 2010 the theoretical capacity limit of a single-mode fiber was found. The forecasted demand of data traffic will exhaust the capacity of the installed fiber plant by 2020. New fiber-optic designs are required in order to guarantee an efficient and sustainable increase in terms of cost and energy consumption for the following 30 years. Spatial division multiplexing in its two flavors, multi-mode and multi-core fibers, has become the new research paradigm. The scope of the project is to investigate on advanced transmission and detection techniques to exploit the capacity of the new optical fiber.

- Bell Labs – Future Impossible (Youtube Channel) – The Shannon Limit

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Location:  791 Holmdel-Keyport Rd., Holmdel, NJ 07733, USA
maps.google.com  →  40°23'25.8"N - 74°11'12.7"W
70 Km from Manhattan (New York City)  www.nycgo.com
Public Transport  www.njtransit.com
Newark Int. Airport  www.panynj.gov/airports/newark-liberty.html

Starting date  September 2017 - February 2018

Duration of the stay  6-12 months (12 months preferable)

Skills required from the candidates

Excellent academic records, good English knowledge, fiber-optic communications, digital communications, signal processing, VHDL programming, Matlab programming.

Number of positions (Bachelor or Master Students)  1

Rewards  Indicative economic compensation of 1350 $/month (subject to student’s performance).

Application  https://etsetb.upc.edu/ca/international/studying-abroad/procediment