Contribution ID: **345** Type: **Poster Presentation**

Maximizing the Channel Capacity of a Space Division Multiplexing System.

Thursday, 28 June 2018 15:00 (2 hours)

The communications systems be-it through free-space or optical fibers have a major potential, the possibility of sending data through multiple channels at the same time, this is called Multiplexing. The free space optical link is studied in this project. We transmit light modes either Laguerre-Gaussian (LG) or Hermite-Gaussian (HG) in the presence of atmospheric noise, turbulence. The optimization process is carried out by choosing orthogonal modes based on translational invariance and resilience from wavefronts distortions. The results show a significant increase in channel capacity of the system according to a choice of mode combinations.

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