# Delay-QoS-Aware Adaptive Modulation and Power Allocation for Dual-Channel Coherent OWC

#### ABSTRACT

- We develop delay-QoS-aware adaptive trans-mission schemes by employing independent and joint channel optimizations subject to average transmit-power constraints.
- We also consider independent, joint, and successive channel optimizations for developing delay-QoSaware adaptive transmission schemes subject to peak transmit-power constraints.
- Numerical results demonstrate that our proposed AM and power allocation significantly outperform the conventional adaptive trans-mission schemes in the strict statistical-delay constraints.

#### **EXISTING SYSTEM**

- Statistical-delay quality of service provides bounded link-layer delay over wireless fading channels with a certain delay-bound violation probability.
- We propose statistical-delay-QoS-aware adaptive modulation and power allocation for a dual-channel coherent optical wireless communication system over the atmospheric turbulence fading channels.
- For given statistical-delay constraints and target biterror-rate requirements, our proposed AM and power allocation maximize the effective spectral efficiency subject to the transmit-power constraints.

#### **PROPOSED SYSTEM**

- Our numerical results provided the following two observations our proposed AM and power allocation achieve significantly larger ESE compared to the conventional adaptive transmission schemes in the strict statistical-delay constraints.
- The proposed JCO-based adaptive transmission provides improved ESE and delay-bound violation probability compared to the proposed ICO- and SCObased adaptive transmissions in strong turbulence fading

## HARDWARE REQUIREMENTS Intel core i3 • Processor • RAM - 2B Hard Disk - 20 GB •

### SOFTWARE REQUIREMENTS

- Operating System : LINUX
- Tool : Network Simulator-2

• Front End : OTCL (Object Oriented Tool Command Language)

#### REFERENCE

- [1] T. Rakia, F. Gebali, H.-C. Yang, and M.-S. Alouini, "Cross layer analysis of P2MP hybrid RF/FSO network,", Mar. 2017.
- [2] N. D. Chatzidiamantis, A. S. Lioumpas, G. K. Karagiannidis, and S. Arnon, "Adaptive subcarrier PSK intensity modulation in free space optical systems,", May 2011.
- [3] M. Z. Hassan, M. J. Hossain, and J. Cheng, "Performance of nonadaptive and adaptive subcarrier intensity modulations in gamma–gamma turbulence,", July 2013.
- [4] I. B. Djordjevic, "Adaptive modulation and coding for free space optical channels,", May 2010.