An Addition-Decomposable **Relaying Protocol and Signal Design for Optical Wireless** mmunications

ABSTRACT

- In this paper, we consider a kind of optical wireless communications cooperative relaying systems where the relay node not only forwards the source's signal, but also transmits its own signal simultaneously.
- We propose an addition-decomposable relaying protocol for the relay node. In the protocol, the demodulated signal from the source and the signal from the relay are superposed with a signal design method called additively uniquely decomposable constellation pair.

EXISTING SYSTEM

- Light emitting diodes exploited as a transmitter device brings the benefits such as easy installment and low cost.
- In addition, intensity modulation with direct detection used in OWC can reduce complexity tremendously compared with coherent detection.
- OWC not only can be applied to indoor communication, but also has many potential applications for outdoor scenarios, e.g., lighthouses broadcastings, intelligent transportation systems and car-to-car communications.

PROPOSED SYSTEM

- An extended Farey sequence is established to formulate the feasible power ratio region of the AUDCP signal.
- The error performance of the signal pair is dominated by two consecutive terms in the sequence.
- Making full use of the properties of the extended Farey sequence, we analyze the transmission performance of the protocol, and derive the closedform dominant terms of symbol error rates of the signal pair.

HARDWARE REQUIREMENTS Intel core 13 Processor RAM 2B• 20 GF Hard Disk

SOFTWARE REQUIREMENTS

: LINUX

• Operating System

- Tool
- Front End

- : Network Simulator-2
- : OTCL (Object Oriented Tool Command Language)

REFERENCE

- [1] D. J. T. Heatley, D. R. Wisely, I. Neild, and P. Cochrane, "Optical wireless: the story so far,", Dec. 1998.
- [2] J. Li and M. Uysal, "Optical wireless communications: system model, capacity and coding,", 2003.
- [3] S. Hranilovic and F. R. Kschischang, "Optical intensitymodulated direct detection channels: signal space and lattice codes,", Jun. 2003.
- [4] Y. J. Zhu, W. Y. Wang, and G. Xing, "Faster-than-nyquist signal design for multiuser multicell indoor visible light communications,", Jan. 2016.
- SIDE Zhang, Y. J. Zhu, and Y. Y. Zhang, "Multi-LED phaseshifted OOK modulation based visible light communication systems,", Sep. 2013.