

# INFORMATION ON DOCTORAL DISSERTATION

Title of the dissertation:

**A research on solutions to improve the performance of optical OFDM systems**

Specified field of study: Telecommunications Engineering

Code of specialty: 9.52.02.08

Name of the candidate: **Ngô Thị Thu Trang**

Name of the research supervisors:

**1. Assoc. Professor Bùi Trung Hiếu, Ph.D.**

**2. Nguyễn Đức Nhân, Ph.D.**

Academic Institution: Posts and Telecommunications Institute of Technology

## THE SCIENTIFIC CONTRIBUTIONS

An analytical model was constructed to evaluate the performance of the optical OFDM system under the overall impact of the system's components such as the transmitter, channel and the receiver. From there, as a premise for proposing solutions to improve optical OFDM system performance, they include

1. The proposal to improve the performance of the optical OFDM systems using the companding algorithms in the electrical domain.
2. The proposal to improve the performance of the optical OFDM systems using optical back propagation in the optical domain.

## ON PRACTICAL APPLICABILITY AND FURTHER STUDIES

The dissertation proposes solutions to improve the performance of intensity - modulation direct - detection OFDM systems. The research contributions show the efficiency of the performance improvement solutions, and evaluation of the feasibility when implementing these solutions in practice. In addition, the dissertation is also a meaningful reference for research groups and teaching materials at universities.

**Research supervisor**

**Candidate**

**Assoc. Prof. Bùi Trung Hiếu, Ph.D.**

**Ngô Thị Thu Trang**