



ABBE SCHOOL OF PHOTONICS

at the Friedrich-Schiller-Universität Jena

Lecture Announcement

for ERASMUS MUNDUS Visiting **Prof. Kyunghwan Oh**

Dep. of Physics, Inst. of Physics and Appl. Physics at Yonsei University, Seoul, Korea.

Tuesday, July 20th, 2:00 pm – 3:30 pm

“Design of micro structured optical fiber and its applications”

This lecture will be dealing with fundamental principles of micro structured holey fibers. Emphasis will be given to index guiding structure to share broad understanding of optical waveguide theory based on total internal reflection as in conventional fibers. Waveguide analysis will be explained and dispersion, mode field diameter, birefringence will be discussed. In the latter part of lecture, hollow optical fiber mainly developed by Prof. Oh's lab will be discussed for various applications in photonic devices, and sensors.

1. Waveguide analysis of micro structured holey fibers
2. Dispersion, Birefringence, and mode field diameter control
3. Hollow optical fibers and their applications in photonic device

Wednesday, July 21st, 2:00 pm – 3:30 pm

“Combining Fourier optics and fiber optics for novel beam shaping”

In this lecture, new efforts to combine Fourier optics and fiber optics will be introduced. Basic concept of Fourier optics will be briefly reviewed in terms of diffraction and spectral analysis. Then previous reports in Fourier optics for novel beam shaping will be reviewed along with its applications. Finally the recent efforts to combine Fourier optics and fiber optics will be explained along with latest experimental achievements in Prof. Oh's laboratory.

1. Introduction to Fourier optics
2. Application of Fourier optics in Bessel beam generation and its application in optical trapping
3. Recent efforts to combine Fourier optics with fiber optics, their potential and impacts.

Audience: upper level undergraduate seniors, graduate students majoring in optics, physics, electrical engineering, and material science

Pre-requisites: electromagnetism, electromagnetic waves, fiber optics

Where: seminar room IAP (Albert-Einstein-Str. 15, new building)