=== 量子科学研究センターセミナーのご案内 ===

南洋理工大学（シンガポール）より Wonkeun Chang 先生をお招きし、量子科学研究センターセミナーを開催致しますので、ご案内致します。
Wonkeun Chang 先生は、機能的中空コア光ファイバーなどを対象とした幅広い研究成果を上げておられます。本セミナーでは、本トピックを中心に最近の研究成果についてご紹介いただきます。
研究室の研究員、学生の皆様もお誘いあわせのうえ、どうぞ奮ってご参加ください。

日時：2024 年 12 月 9 日(月) 16:20 - 18:00
場所：東 6 号館 803 室
主催：量子科学研究センター

Speaker: Prof. Wonkeun Chang (Nanyang Technological University, Singapore)
Title: Engineering light guidance in antiresonant hollow-core fibers for functional devices and mid-infrared pulse generation

Abstract: Antiresonant hollow-core fibers exhibit transmission windows that span a broad spectral range, separated by a series of high-loss bands. These loss bands arise due to strong coupling between modes in the hollow core and the dielectric cladding wall, making the cladding wall thickness a key geometrical parameter in antiresonant hollow-core fiber design. In their vicinity, cladding wall-induced resonances dominate the loss, spatial profile, and dispersion characteristics of the core modes. This presents an interesting opportunity to engineer light-guiding properties by tuning the cladding geometry.
We leverage these features to demonstrate novel hollow-core fiberized functional devices such as spectral filters, polarizers, and fiber Bragg gratings. Furthermore, the rapid variation in dispersion around these resonances is exploited for generating mid-infrared pulses with multi-megawatt peak powers, offering a new avenue for powerful, fiber-based mid-infrared light sources.

Biography: Wonkeun Chang is an Associate Professor at the School of Electrical and Electronic Engineering at Nanyang Technological University, Singapore. He received his BTech (Hons) in Optoelectronics and MSc in Physics from The University of Auckland, followed by a PhD in Physics from The Australian National University. After completing his PhD, he joined the Max Planck Institute for the Science of Light, where he developed expertise in ultrafast light-matter interactions in hollow waveguides. In 2013, Dr. Chang was granted a Discovery Early Career Researcher Award from the Australian Research Council and led a project on complex pulse dynamics and extreme events in ultrafast laser systems at The Australian National University. His research interests include microstructured optical fibers, novel light source development, and femtosecond laser systems. Dr Chang is serving as an Associate Editor of the Journal of Lightwave Technology and Optical Fiber Technology.

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