

量子科学研究センターセミナーのご案内

下記のように、光周波数コムによる低ノイズマイクロ波発生に関するセミナーを行います。

講師のコロラド大学/JILA Thomas Schibli 先生は、光周波数コム、モード同期レーザー、精密計測・制御に造詣の深い先生です。今回、JSPS 招へい事業で本学に 2 か月間滞在されている機会に、セミナーを行っていただくことになりました。基礎的なバックグラウンドからお話しいただけるので、研究室の学生さんもお誘いあわせの上、ご参加いただければ幸いです。

日時：2022 年 10 月 14 日(金) 16:15～

場所：東 6 号館 337 教室

IAS Seminar on Optical Science

Title: Photonic microwave generation and characterization at the quantum limit and beyond

Speaker: Prof. Thomas R. Schibli, Department of Physics and JILA, University of Colorado at Boulder

Abstract: Precision measurements enabled by exquisitely stable optical sources had a profound impact on the global precision metrology enterprise. In the meantime, optical frequency combs have progressed far beyond optical frequency measurements, and are now actively used for a much broader range of applications. A solid understanding of the fundamental noise processes in oscillators was essential to advance this field at such a rapid pace. This talk will therefore start with an overview of fundamental noise processes in oscillators, and highlight some of the major differences between electronic and optical sources. I will then discuss what levels of stability can currently be reached directly from a laser, and how to realize comb-based signal generation and characterization at levels far below the standard quantum limit. As a practical application, I will elaborate on the generation of laser-driven, ultra-low noise microwaves, now readily surpassing the best room-temperature microwave sources at a fraction of their size, weight and power.

Bio:

Dr. Thomas R. Schibli received his Diploma in Physics from the Swiss Federal Institute of Technology and his Ph.D. from the University of Karlsruhe in Germany in 2001. He then joined the Massachusetts Institute of Technology in the USA as a postdoctoral researcher. From 2003-2006 he worked at the Institute of Advanced Industrial Science and Technology (AIST) at Tsukuba, Japan and from 2006-2008 he was a senior research associate of JILA at the University of Colorado at Boulder. In 2008, he joined the Department of Physics, where he now works as a full professor and an Adjunct Fellow of JILA. His research interests are in the fields of ultrafast physics, solid-state physics, and optical precision metrology including time, frequency and dimensional metrology.

お問い合わせ：

量子科学研究センター/基盤理工学専攻 美濃島 薫 k.minoshima@uec.ac.jp