



Seminar

Precision Unleashed: Optical Frequency Combs and Ultrastable Lasers in Science

Dr. Michael Mei

Menlo Systems GmbH, Germany



Time: 10:00am, May. 10, 2023 (Wednesday)

时间: 2023年5月10日 (周三) 上午10:00

Venue: Room w563, Physics building, Peking University

地点: 北京大学物理楼, 西563会议室

Abstract

The advent of long-term stable ultra-low noise frequency combs opens new prospects for precision measurements. Optical frequency Combs are optimized for demanding applications that require hands off operation, improved robustness to environmental challenges and at the same time ultimate performance. Such applications include operation as clockwork for optical clocks, calibration of astronomical spectrometers and frequency combs designed for use on board of sounding rockets. In this presentation, we will explore the cutting-edge applications of optical frequency combs and ultrastable lasers in research and industry. We'll discuss Menlo Systems' collaborations on space projects over the past four years, highlighting their role in advancing scientific understanding and space exploration. Next, we'll outline joint projects and future plans in quantum research, emphasizing collaborations with partners. Lastly, we'll briefly present Menlo's technology roadmap for the next five years, focusing on the evolution of their combs and ultrastable lasers, and their potential to drive innovation and efficiency across various sectors.

About the speaker

Dr. Michael Mei received his Master in Science in 1994 from the University of Massachusetts, USA, during a one year scholarship on a topic in theoretical physics. In 1996, he received his Diploma from the University of Konstanz, Germany, with a thesis on laser cooling of atoms in a joint project with the University of New York at Stony Brook working under the supervision of Prof. Mlynek and Prof. Metcalf. In 1997 he joined the Swiss Federal Institute of Technology in Zürich doing a one year research project on nonlinear optics. He then went on back to Germany joining the group of Prof. Hänsch at the Ludwig-Maximilians University and the Max-Planck-Institute of Quantum Optics in Munich. In February 2001, Michael received his doctoral degree with honors for experiments in multiple beam atomic interferometry and precision measurements. In May 2001, he founded Menlo Systems together with his colleague Dr. Holzwarth and his supervisor Prof. Hänsch with the vision to commercialize the Optical Frequency Comb Technology that has been invented at the Max-Planck-Institute of Quantum Optics. Since the start in 2001, he is in the role of the Managing Director of the company which has grown from the founders team to a market leader in photonics with more than 175 employees in 2023 with locations in Germany, USA, China, and Japan.