

## REGISTRATION

Spotlight day: 500 EUR

Full Seminar fee: 3,500 EUR

Class size is limited to 10 persons.

Attendance is on a first-come, first-served basis and is subject to availability.

## ACCOMMODATION

Menlo Systems can provide help finding accommodation. A recommendation due to its proximity to the venue is the Stay.residence:

<https://www.thestayresidence.de/>

Please inquire directly with the hotel staff for availability.

### Contact for more information on seminar topics and registration:

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Fax: +49 89 189 166 111  
[g.thomas@menlosystems.com](mailto:g.thomas@menlosystems.com)

### Questions regarding hotel and travel assistance should be sent to:

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[www.menlosystems.com](http://www.menlosystems.com)

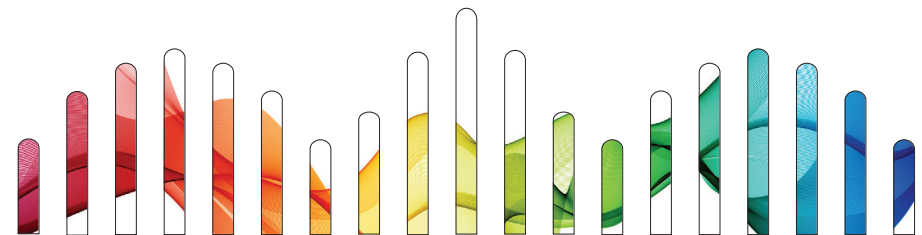


# 13TH FREQUENCY COMB SEMINAR

**September 12th - 15th , 2023 hybrid seminar  
(the week before the Munich Oktoberfest)**

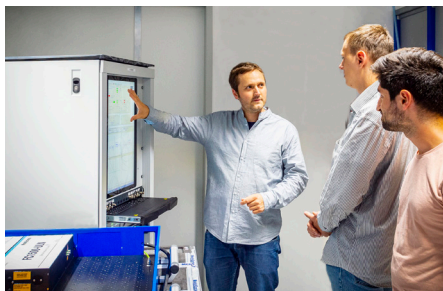
**September 12th online, September 13th - 15th in person**

**Location:  
Menlo Systems Headquarters  
in Munich**



Menlo Systems offers its thirteenth in-house seminar on optical frequency combs, metrology and optical frequency measurements.

Menlo Systems, a leading developer and global supplier of instrumentation for high-precision metrology, was founded in 2001 as a spin-off of the Max Planck Institute of Quantum Optics, with the foremost aim to commercialize optical frequency comb technologies and make them available to newly emerging application fields. Menlo Systems maintains a strong bond with co-founder Nobel Laureate Theodor W. Hänsch, who pioneered precision laser techniques.



**September 12th** will be **online**: This part is intended as an overview, suitable for decision makers who need to gain a top-level understanding of optical frequency combs and their applications.

**September 13th - 15th** will be **in person**: This will focus on the deeper technical details underpinning optical frequency combs, their characterization, and their operation. The course will include morning lectures and afternoon hands-on training sessions with our state-of-the-art in-house optical frequency comb systems. Our instructors have extensive knowledge and expertise in optical frequency combs and optical frequency measurements. Full participation and interactivity will be ensured by the limited class size.

List of external speakers, final schedule will be available in July 2023.

## PRACTICAL TRAINING SESSIONS

Participants can deepen their knowledge and improve lab skills as they work with our state-of-the-art FC1500-ULN<sup>nova</sup> optical frequency synthesizer and various stabilized CW lasers.

## TOPICS INCLUDE

### SPOTLIGHT DAY (ONLINE)

- fundamentals of frequency comb technology
- frequency comb applications

- external speaker: end-user insights

### FULL SEMINAR (IN PERSON)

- hands-on experience on a Menlo FC1500-ULN<sup>nova</sup> system
- hands-on experience on a 1-Hz linewidth optical reference system (ORS)
- CW laser frequency measurements and phase-locking
- building blocks of Menlo comb systems
- building blocks of Menlo device control software
- data acquisition and analysis
- remote system control via API
- RF vs. optical references
- systematic and statistical errors
- stability and accuracy
- certification

## COMMENTS FROM ATTENDANTS

“Totally helpful – almost mandatory”

“The talks were great and the time spent in the labs was very good practice”

“Great atmosphere”

“Time for questions and discussions with experts”

“Excellent organization, nice people”

“I’ll definitely be sending students in the future!”

