



# LASERLAB.DK

Danish Center for Laser Infrastructure

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## LASERLAB.DK Webinars

Dear friends and colleagues,

Due to the Covid-19 situation and its restrictions to meet in larger assemblies, 2020 turned out to be a difficult year for LASERLAB.DK to increase its focus on network activities.

As you, we have hoped the situation would have been much improved by now, so that we already here in the beginning of 2021 could have announced some in-person network events. However, since this is not the case, we have decided meanwhile to arrange a series of short webinars with focus on some laser-based topics which we believe could be of interest for a wide range of manufactories, users, and researchers in Denmark. Each webinar will be a 1.5 hours afternoon event with a talk presented by a specialist (40-60 min.), a short introduction (10-15 min.) putting the topic into context of LASERLAB.DK and a Q&A/discussion session at the end (20-30 min.).

The series of webinars look like this:

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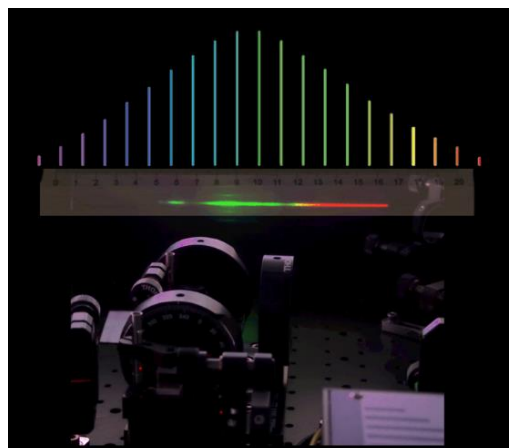
### **Optical Frequency Combs: An Optical Ruler**

**Marts 24 15:00-16:30:**

**Speaker:** Andreas Næsby Rasmussen, DFM

An optical frequency comb is a controlled rainbow of individual lasers that span a large range of colours. It is both a powerful tool for diverse applications such as a measuring device for precise spectroscopy of molecular transitions such as for trace gas detection and atomic physics. It is at the same time an absolute reference for metrology, for transferring the standard meter, and can even be used as an optical clock.

In this talk, I will introduce the optical frequency comb as a powerful tool for many diverse scientific fields. I will give an appetizer of the many different applications, and will describe various implementations, from the initial invention to modern versions as well as our approach at DFM, The Danish National Metrology Institute.



**Short introduction:** Michael Drewsen, AU

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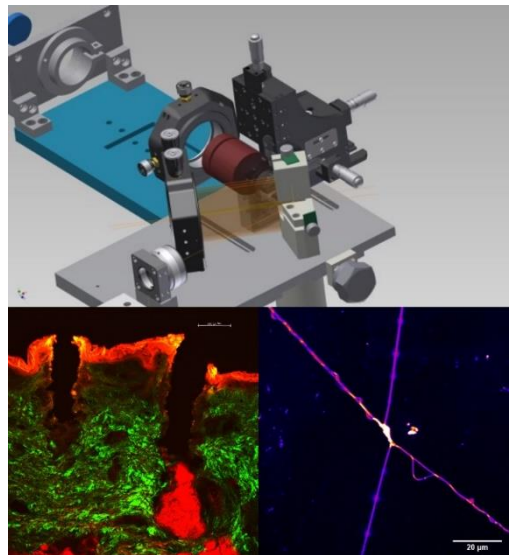
## Applications of Lasers in Bioimaging

**April 14 15:00-16:30:**

**Speaker:** Jonathan Brewer, SDU

Seeing is believing, which is why microscopy and imaging traditionally plays a central role in biological research. Many of the main bioimaging techniques are based on lights different interaction with the samples and therefore lasers play an increasingly important role in advanced bioimaging.

In this talk we will discuss some interesting recent developments and applications of lasers in bioimaging based on applications involving characterization of spider silk and human skin. The talk will cover techniques such as laser scanning confocal microscopy, Nonlinear optical microscopy, Coherent anti Stokes Raman scattering (CARS) microscopy and Stimulated emission depletion (STED) microscopy with a focus on the application of the different lasers used.



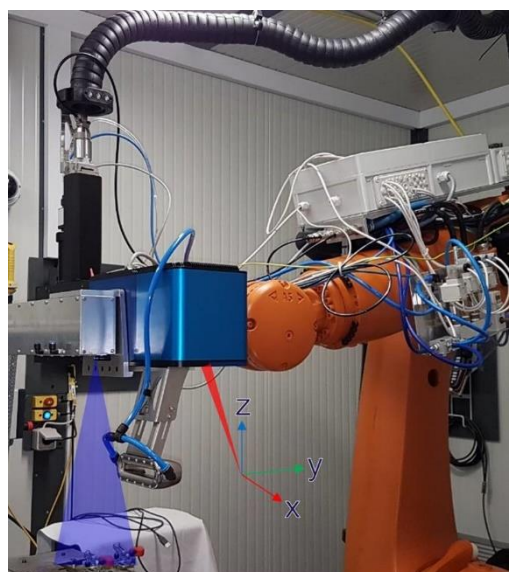
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## New Manufacturing and Measurement Possibilities with Lasers

**May 26 15:00-16:30:**

**Speaker:** Morten Kristiansen & Anders Noel Thomsen, AAU

Industrial laser processing has for many year been well knows as laser cutting and laser welding. A range of other laser processing technologies has been matured and joint in one machine setup, which will be presented. Additional measurements during processing becomes important for process control. Here laser technologies for pre, inline and post sensing is an excellent tool and various systems and applications will be presented.



To get access to the webinars, you will have to register via the following link:  
**[events.au.dk/laserlab/signup](https://events.au.dk/laserlab/signup)**

In the autumn of 2021, we expect to complement the webinars by some in-person meetings to further stimulate interactions, developments of ideas and fertilize the ground for future collaborations.

Looking forward to see you at the webinars!

Best regards,  
Michael Drewsen  
On behalf of the LASERLAB.DK Stirring Committee