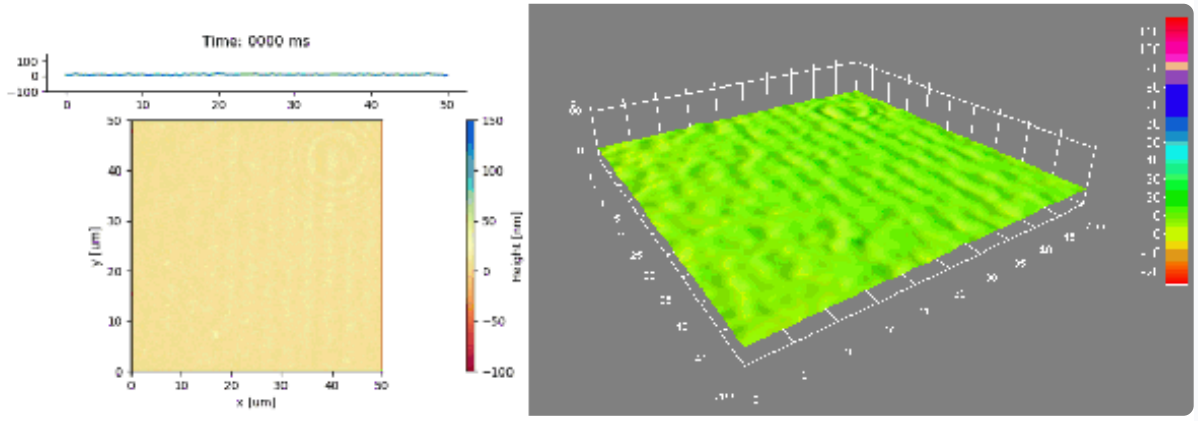
lyncée tec DHM®

Digital Holographic Microscopy

# High Resolution Interference Lithography controlled in-situ by DHM®

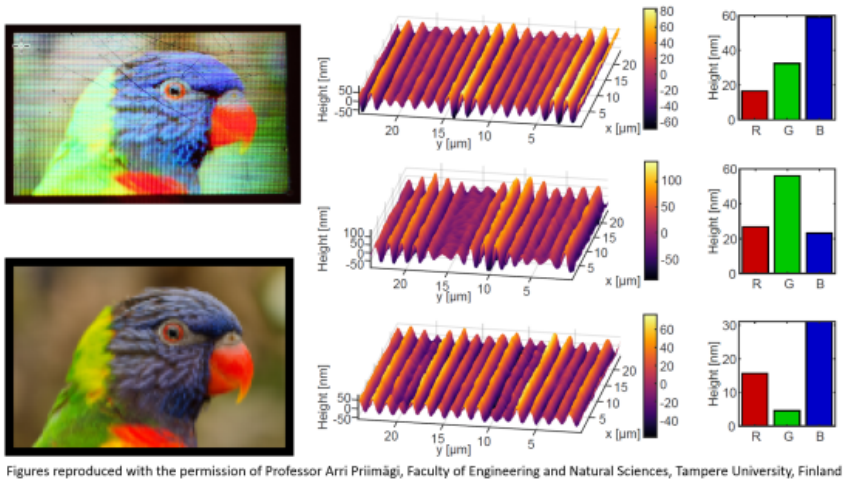
A new seminal publication reports real-time 4D topography measurements with our Digital Holography Microscopes (DHM®) **SIMULTANEOUSLY** to laser processing. Congratulations to Professor Arri Priimägi and his team at Tampere University

## Surface topography measurements simultaneously to laser texturing




Surface-relief grating formation measured in real time with interferometric resolution at 194 fps (up to 14'000 fps in option) with a DHM® R2100.

## Full color image writing by stacking DHM® controlled gratings

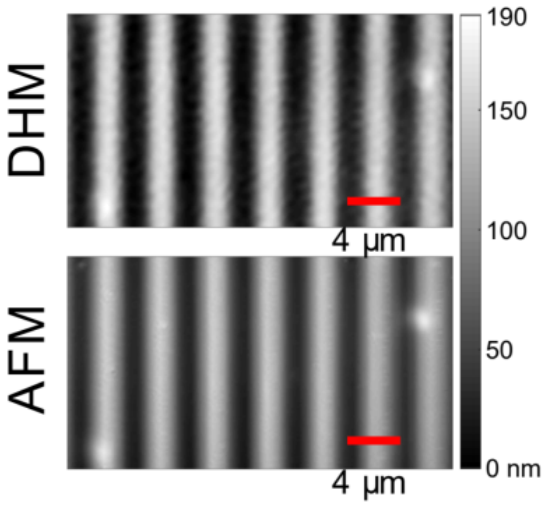



Figures reproduced with the permission of Professor Arri Priimägi, Faculty of Engineering and Natural Sciences, Tampere University, Finland

Tampere team has created periodically varying patterns on the sample surface by controlling individually two laser beams coupled into the DHM® through the optional **external optical port**.

With the in-situ feedback of the DHM® topography measurements, stacking gratings results in full color images.

Learn more about this application




## DHM® adds time-resolution to AFM

Topography of a 1.5 µm period grating inscribed by a conventional two-beam interference setup is measured by AFM and DHM® (left figure).
Additionally to AFM, DHM® provides non-contact surface topography measurement at 194 fps simultaneously to the interference lithography. Measurement does not perturb the texturing process.

DHM®: the laser metrology

**Professor Arri Priimägi**
Smart Photonic Materials
Faculty of Engineering and Natural Sciences
Tampere University, Finland

*"I am very excited by this new tool. It will open a whole new world for photosensitive azopolymer films, as attested for example by the pixelated photopatterning demonstrated below. Big thanks to the members of the Smart Photonic Materials Team, especially Dr. Heikki Rekola, for making this happen, and the Lyncée high qualified staff for seamless interaction."*

**Dr. Heikki Rekola**
Department of Physics and Mathematics,
University of Eastern Finland
Kuopio, Finland

*"The immediate feedback provided by the DHM measurement has proven to be the key enabler for our surface patterning studies. It has allowed us to test and iterate much faster than before, and I think this will enable us to develop new and exciting applications for these materials in the future."*

## A reference publication

Digital holographic microscopy for real-time observation of surface-relief grating formation on azobenzene-containing films
*Heikki Rekola, Alex Berdin, Chiara Fedele, Matti Virkki, and Arri Priimagi*
Sci Rep 10, 19642 (2020). https://doi.org/10.1038/s41598-020-76573-6.

# Book a DHM live-demo now !

Do you want to discover our product while avoiding unnecessary travels and interactions during the COVID-19 situation?

For any stand alone DHM® microscope purchased based on a **remote live-demo**, Lyncée Tec commits to plant **200** trees through the non-profit organization OneTreePlanted and to provide you with a certificate.

Contact us to book a live demo!

ONETREEPLANTED

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