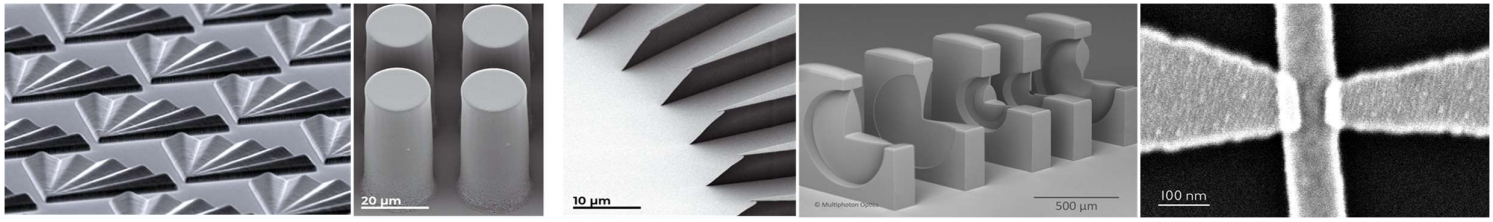

Maskless Direct Writing and 3D Lithography: Capabilities and Applications

11th of April 2024

Program

9:30 Welcome Reception

Coffee & snacks

10:00 Introduction

Nikos Ekizoglou, Irida Iberica

Prof. Pedro Barquinha, NOVA School of Science and Technology (FCT-NOVA)

10:30 Expanding the nanolithography toolbox

Vasileios Theofylaktopoulos, Heidelberg Instruments

Abstract: Thermal scanning probe lithography (tSPL) is an exciting solution for nanolithography & thermal modification. tSPL provides ways to make nanostructures of arbitrary shapes on a wide range of substrate materials. tSPL and direct laser sublimation combination cover a wide range of dimensions. Thermal nanolithography is achieved through an ultra sharp heated tip. This is combined with in-situ real-time reading of written structures. The writing depth is actively controlled in a closed-loop system. Applications range from nanoelectronics, photonics, spintronics to nanofluidics.

11:45 3D Lithography and 3D Microprinting via Two-Photon Polymerization

Volker Heine, Heidelberg Instruments

Abstract: High-precision 3D printing provides a wide range of freedom in design for many applications, like micro-optics, photonics, micro-mechanics and biomedical engineering. Modular 3D printing platform offers high precision on demand for 3D Lithography as well as high print volume for 3D Microprinting and enables production of complex functional microstructures. The talk will give an introduction into the technology and show examples of applications realized with the latest 3D printing technological innovations.

12:30 Direct Write Lithography – fast and flexible prototyping without photo masks

Daniel-Alexander Braun, Heidelberg Instruments

Abstract: Maskless lithography technology has become firmly established in research labs worldwide as well as in many small to mid-volume micro fabrication facilities. Application areas include MEMS, microfluidics, micro-optics, sensors, electronic components and many more. This presentation will give you an insight into our maskless lithography technology with emphasis on our DWL series and the maskless aligner series.

13:15 Lunch break

Food & drinks provided

14:15 Efficient and flexible nanopatterning with Variable Shaped Beam lithography

Mathias Haedrich, Vistec Electron Beam

Abstract: Variable Shape Electron Beam Lithography can perform nanopatterning on various types of wafer and mask substrates for advanced research and industry. Due to Variable Shaped Beam and Cell Projection technology, fast pattern writing is possible for a wide range of applications in semiconductor electronics, quantum technology, micro-optics, and photonics.

15:00 Software enabling advanced nanopatterning with electron-beam and laser lithography

Dmitri Titko, GenISys

Abstract: Nanopatterning with electron and laser beam lithography is a key in development of new device technologies such as quantum, photonics, plasmonics, AR/VR. Lithography software for simulation, proximity and process correction, data-preperation to optimize the exposure enable improving resolution, shape fidelity, CD Linearity and line edge roughness for higher quality devices. We will present state of art software solution and their application examples for pushing the limits of nanopaterning.

15:45 Meet the presenters

Coffee and snacks

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Location:

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Faculdade de Ciências e Tecnologia da Universidade NOVA de Lisboa
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