



# Hot tip nanoengineering: 30 years and counting

**Juergen Brugger**  
Professor of Microengineering at EPFL

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Zoom link: [click here](#)  
Meeting ID: 825 8329 3989 and passcode: 895050



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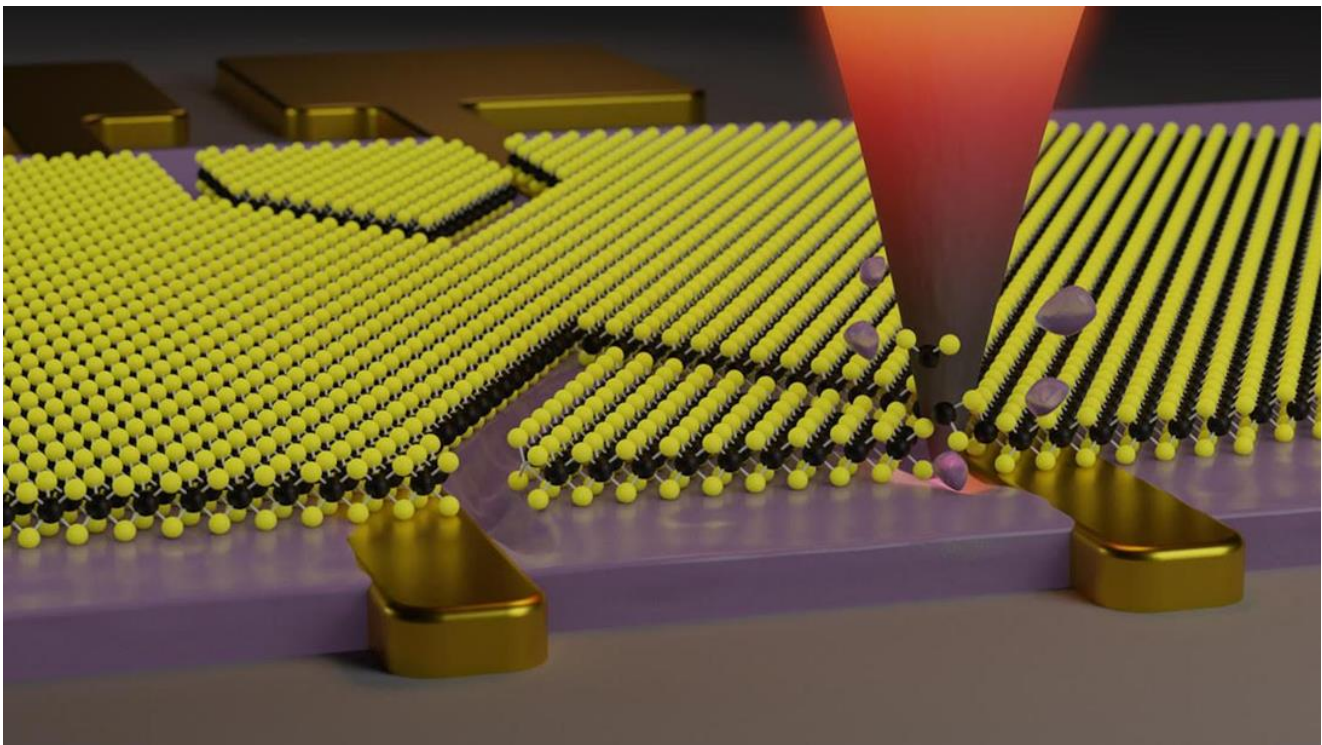
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## Abstract:

Soon after the first publication in 1985 of the atomic force microscope (AFM) attempts were made to extend AFM-based surface probing from microscopy to lithography [1]. In this talk, I will start by giving some background how heated AFM probes were initially designed and microfabricated that led to today's advanced thermo-mechanical probe design. The paper will then review some of our own work in t-SPL writing and pattern transfer, as well as our recent work on functional material, including silk and 2D materials [2, 3].



## Ref:

1. Thermal scanning probe lithography – a review; Howell et al. *Microsystems & Nanoengineering* (2020) 6:21
2. Thermomechanical Nanocutting of 2D Materials, Xia Liu et al., *Advanced Materials*, Volume 32 (2020)
3. Thermomechanical Nanostraining of Two-Dimensional Materials, Xia Liu et al., *Nano Letters* (2020)

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**Juergen Brugger** is a Professor of Microengineering at EPFL. Previously he was at the MESA Research Institute of Nanotechnology, University of Twente, The Netherlands, at IBM Zurich Research Laboratory, and at Hitachi Central Research Laboratory, in Tokyo, Japan, where he mainly worked on parallel scanning probe systems. He received a Master in Physical-Electronics and a PhD degree from Neuchâtel University, Switzerland. Research in his laboratory focuses on various aspects of MEMS, nanotechnology, printing and self-assembly. Juergen Brugger is Fellow of the IEEE and the 2022 MNE Fellow. In 2017 he was awarded an ERC AdvG in the field of advanced micro-manufacturing.