



Prof. Hans Hilgenkamp
Scientific Director
Dr. Timo Meinders
Managing Director

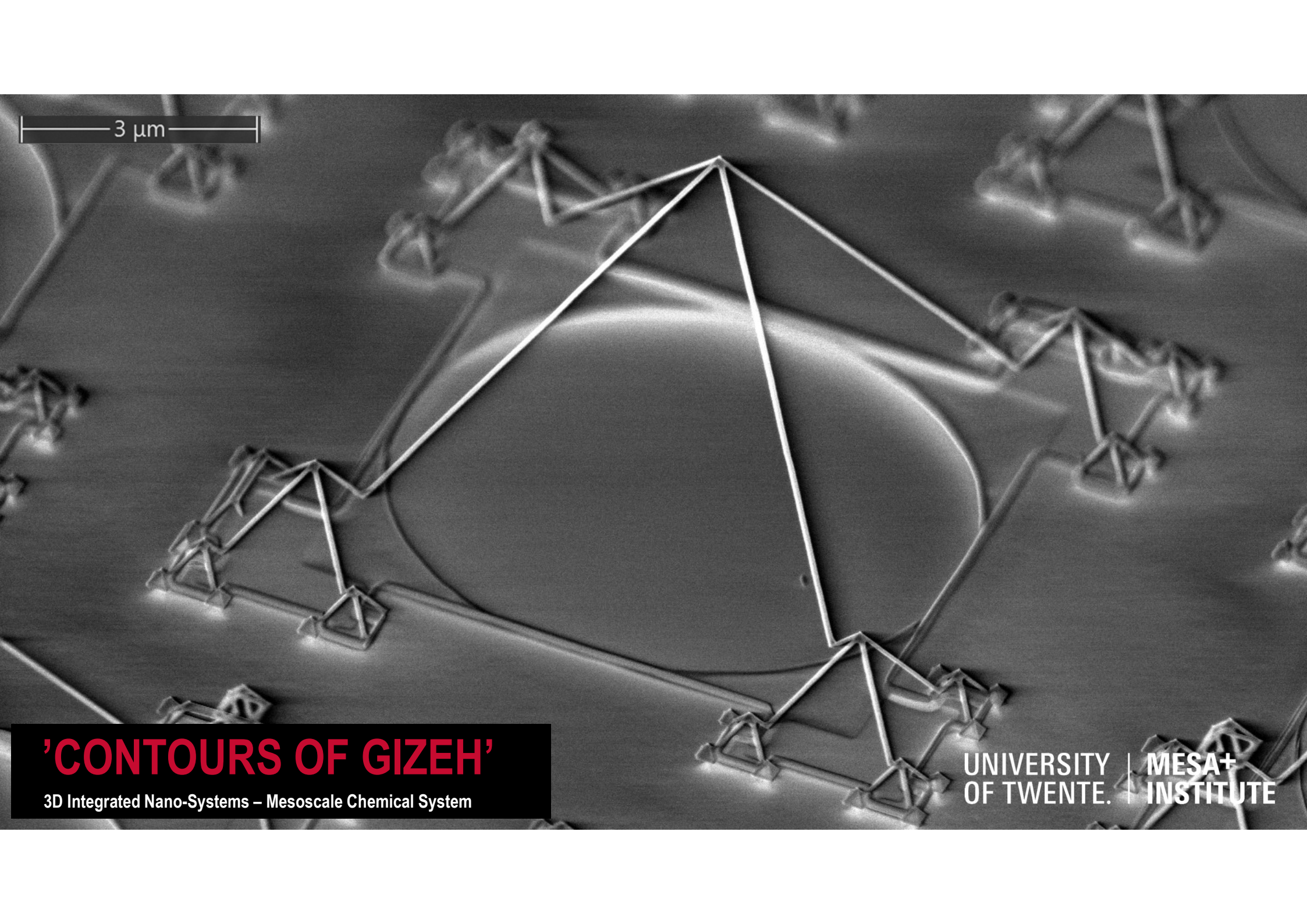
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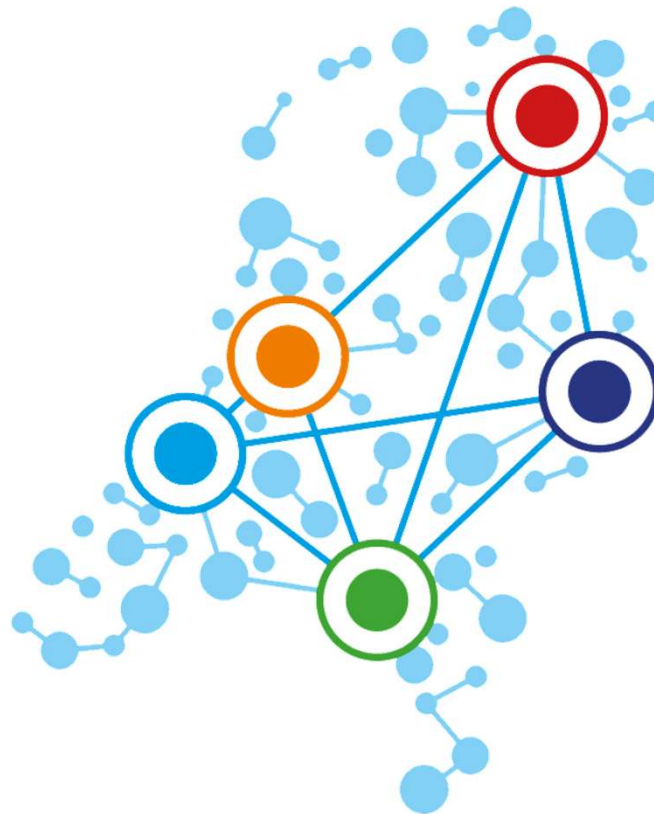
3 μm

'CONTOURS OF GIZEH'

3D Integrated Nano-Systems – Mesoscale Chemical System

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NanoLabNL Collaboration



-  **Groningen**
Zernike NanoLab
-  **Enschede**
MESA+ NanoLab
-  **Amsterdam**
AMOLF NanoLab
-  **Delft**
Kavli NanoLab | Else Kooi Lab | TNO NanoLab
-  **Eindhoven**
NanoLab@TU/e

EEMCS

Electrical Engineering, Mathematics
and Computer Science

S&T

Science and Technology

ET

Engineering Technology

BMS

Behavioural, Management and
Social Science

ITC

Geo-Information Science and
Earth Observation

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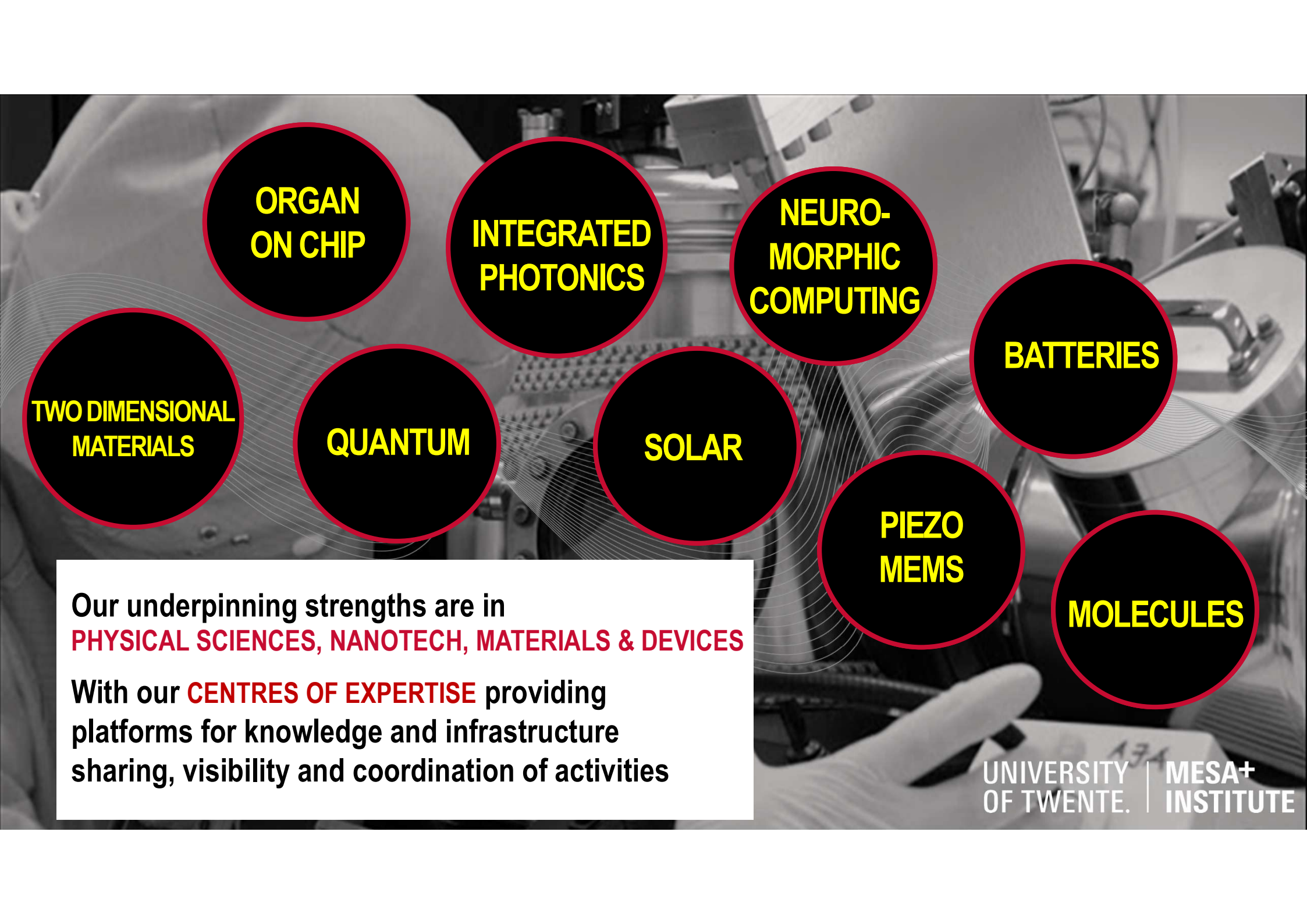
**TECHMED
CENTRE**

UNIVERSITY
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**DIGITAL SOCIETY
INSTITUTE**

UNIVERSITY
OF TWENTE.

**CLIMATE
CENTRE**



**ORGAN
ON CHIP**

**INTEGRATED
PHOTONICS**

**NEURO-
MORPHIC
COMPUTING**

BATTERIES

**TWO DIMENSIONAL
MATERIALS**

QUANTUM

SOLAR

**PIEZO
MEMS**

MOLECULES

Our underpinning strengths are in
PHYSICAL SCIENCES, NANOTECH, MATERIALS & DEVICES

With our **CENTRES OF EXPERTISE** providing
platforms for knowledge and infrastructure
sharing, visibility and coordination of activities

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CENTER FOR INTEGRATED PHOTONICS

NOVEL PHYSICAL CONCEPTS, MATERIALS, INTEGRATION TECHNOLOGIES
AND SYSTEM INTEGRATION FOR A BETTER SOCIETY

Sonia M. Garcia Blanco, David Marpaung, Pepijn Pinkse, Jelmer Renema



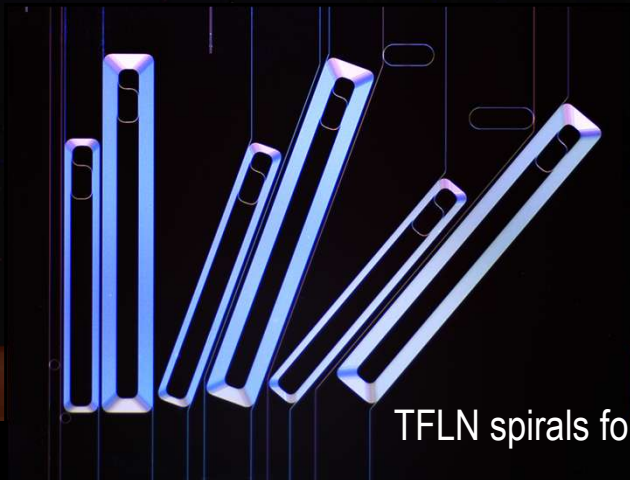
Al_2O_3 spirals in the UV



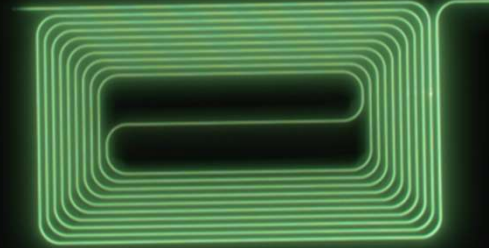
SiN-on-sapphire platform

APPLICATIONS:

- Quantum technology
- LIDAR
- Datacom/telecom
- Microwave photonics
- Optical sensing

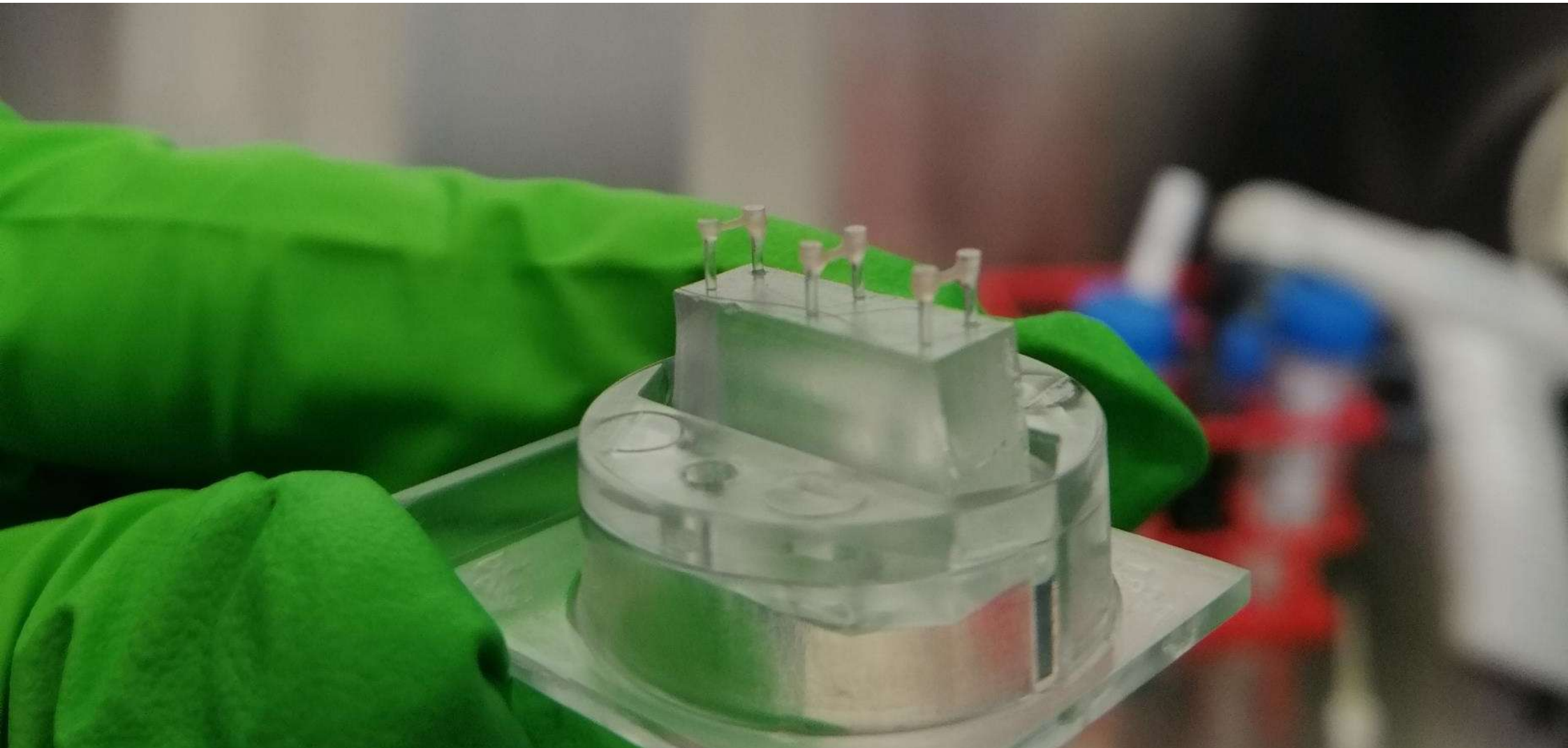


TFLN spirals for SBS



Erbium doped Al_2O_3 spirals for
on-chip amplification

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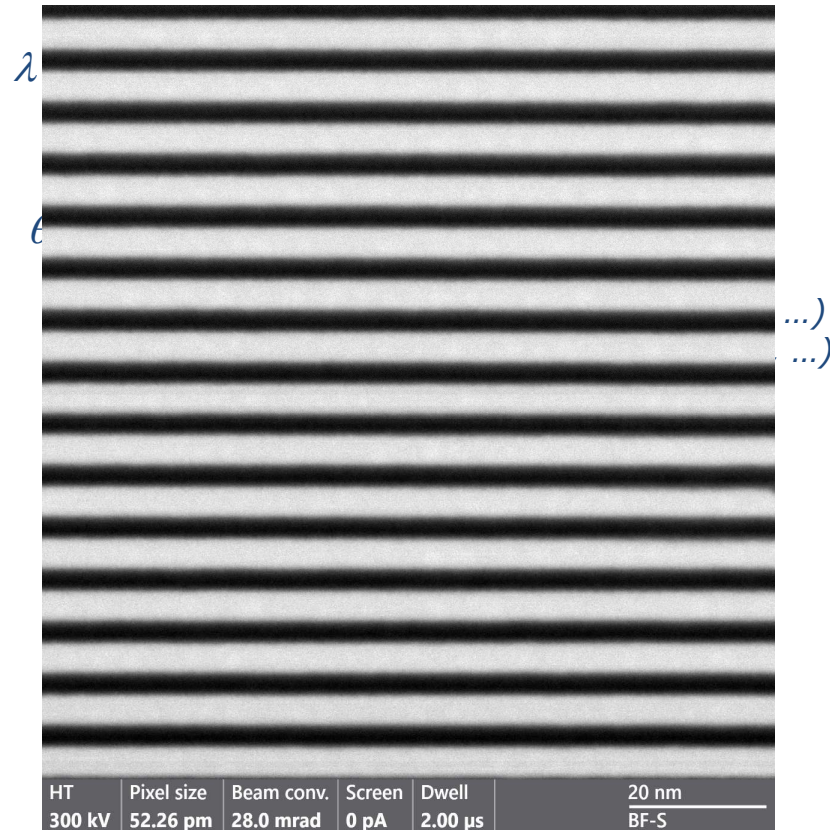


HEART ON A CHIP

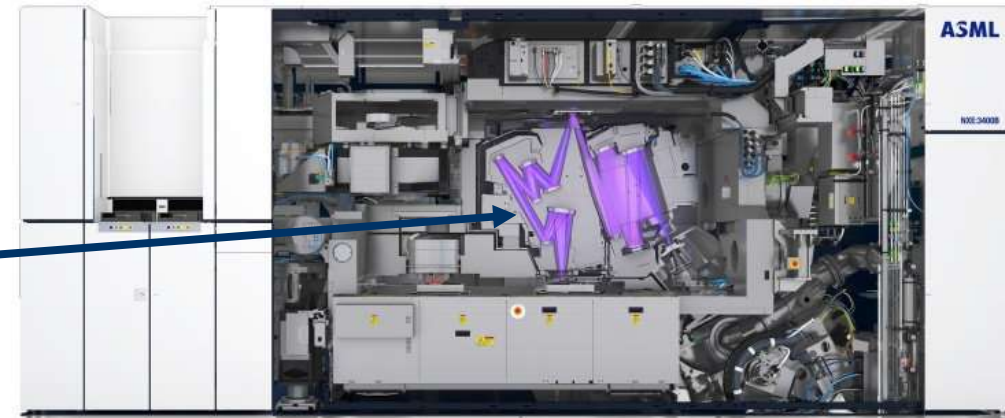
Robert Passier & Andries van der Meer - AST | Loes Segerink - BIOS

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Multilayer EUV mirrors – The 6.9 nm d-spacing Mo/Si mirror at the heart of lithography



...)
...)



EUV scanner schematic representation - Source : ASML

Wavelength	13.5 nm
Number of XUV mirrors	10 + reticle + collector
Resolution	14 nm

MESA+ related spin offs

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and counting..



Pix Europe: 200 mm SiN pilot line

Quantum Chips: 'P4Q' Photonics for Quantum - Coordinator