

Accelerating sample throughput: The Shuttle Platform for Sample Preparation

DC Area FIB-Users Group Workshop
Gaithersburg, February 25th, 2010
Stephan Kleindiek, Kleindiek Nanotechnik





Founded 1998

25 People, 6 in R&D

20 distributors

More than 1300 systems in the field

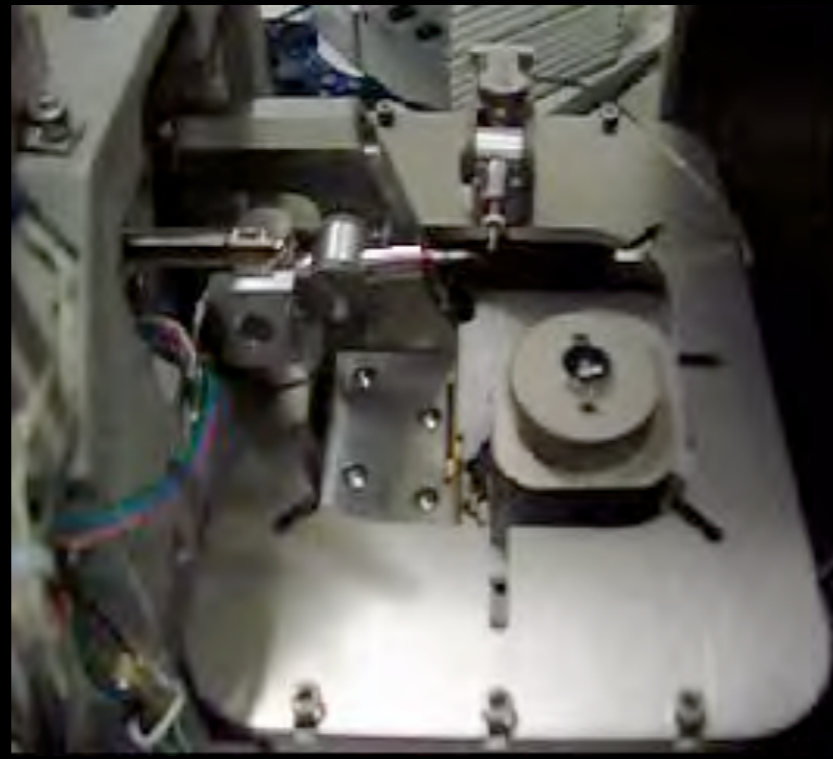


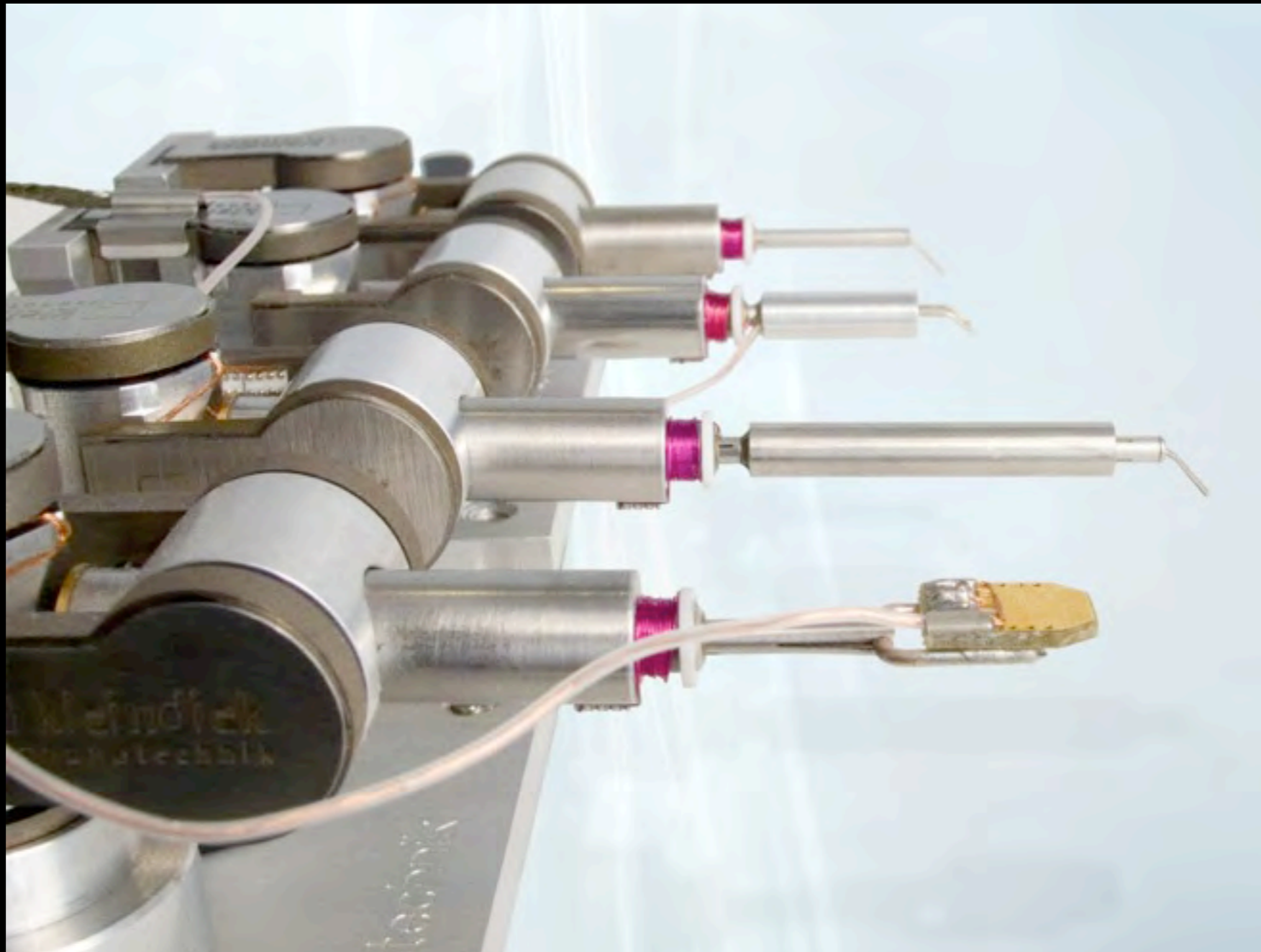
Give your microscope a hand!



MM3A





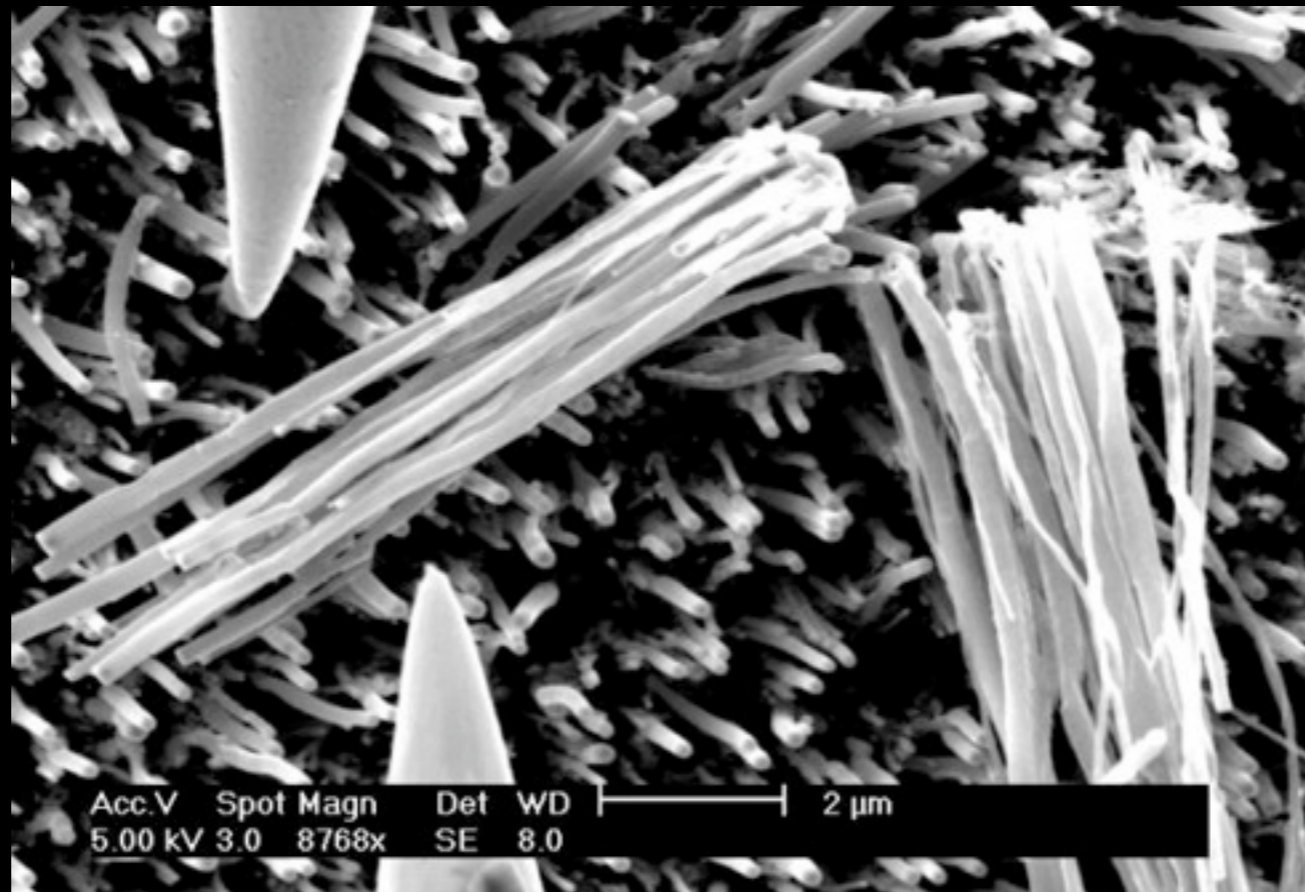


Plug-Ins

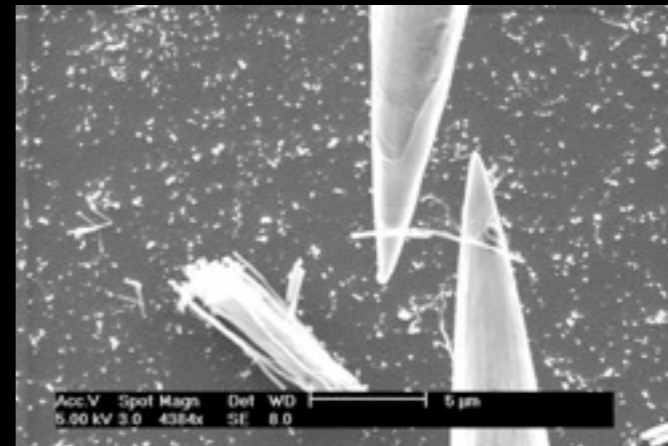
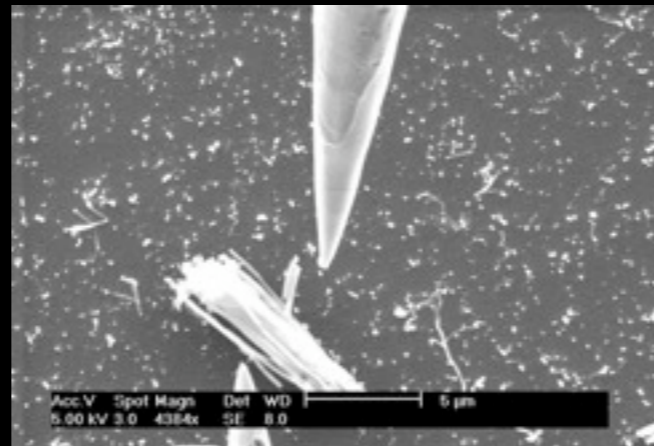
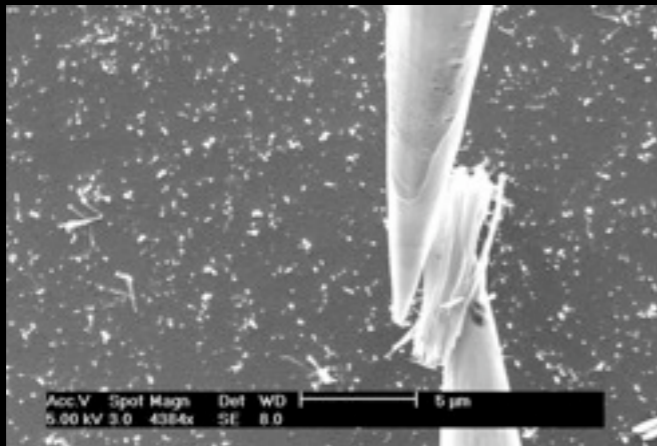
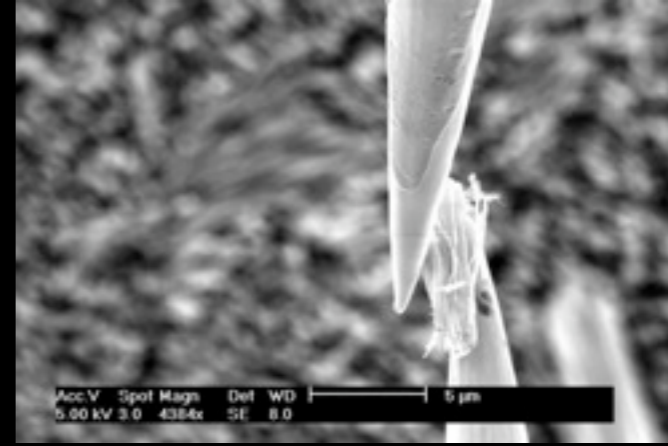
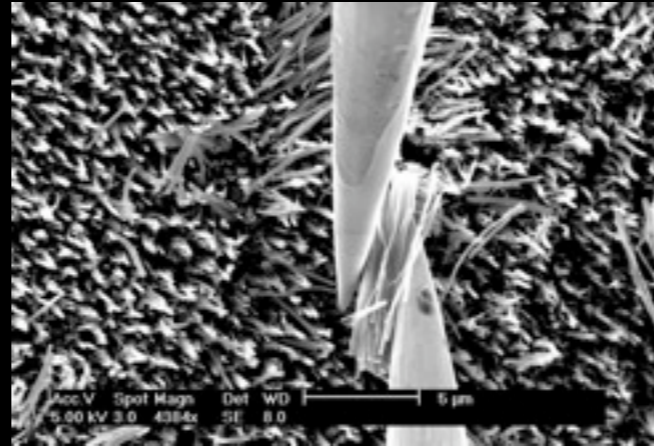
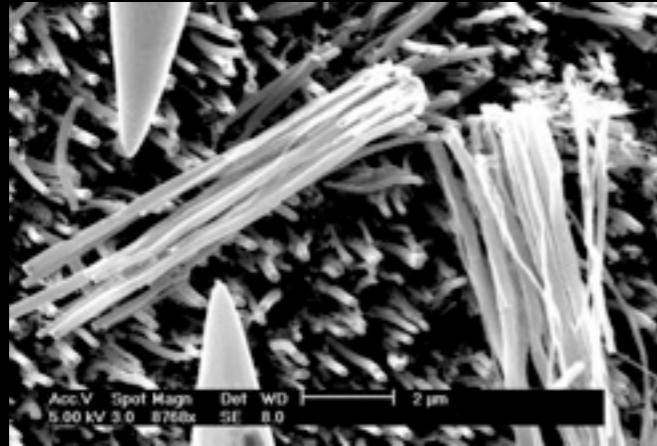
Force Sensor, RoTip, Gripper, Tip Holder



Microscopes@Kleindiek.Nanotechnik



Micro- and Nanomanipulation



Manipulation of CNT Chopsticks



Glue and Pull CNT



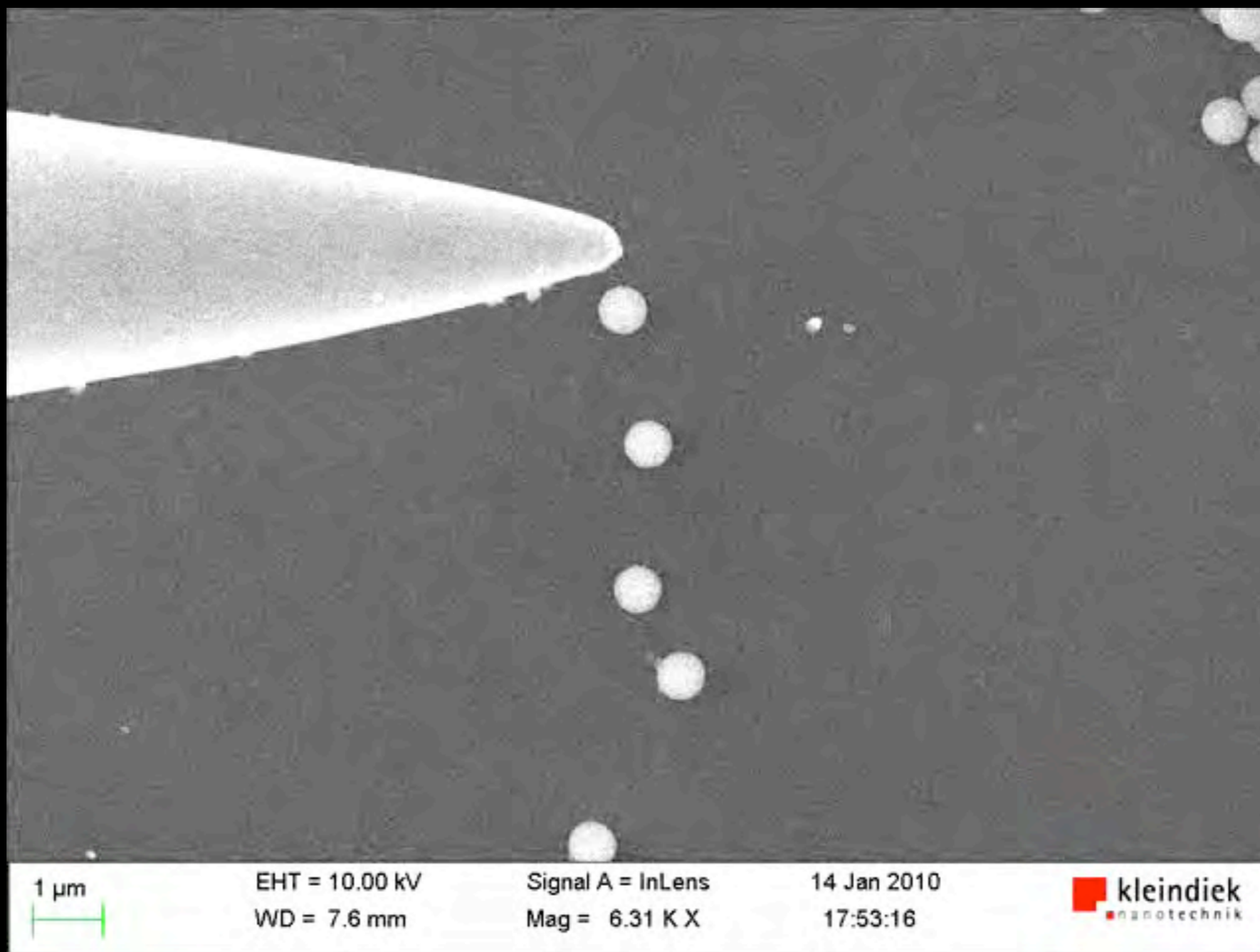
Open the door



Dig



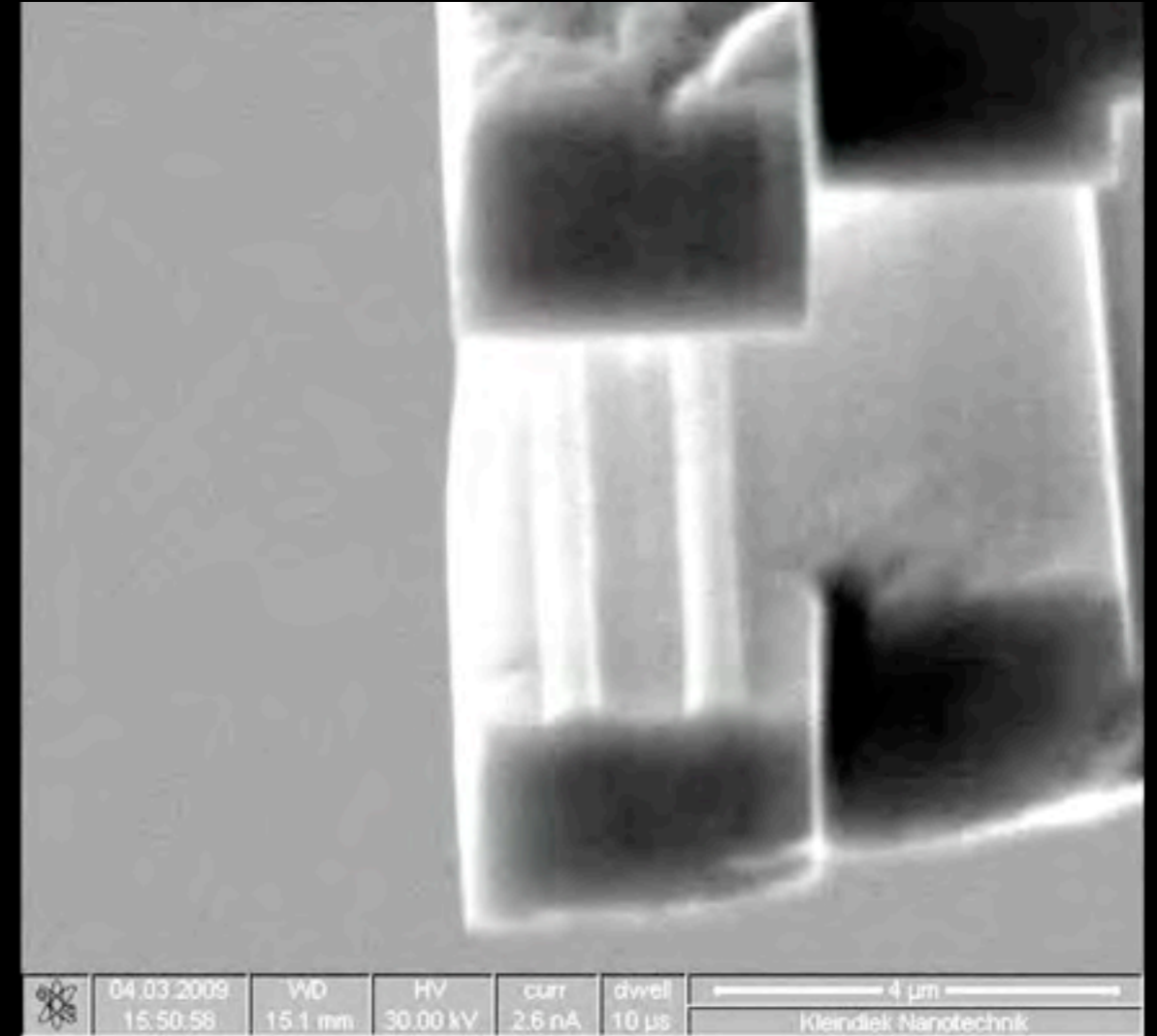
Cut a PE Foil



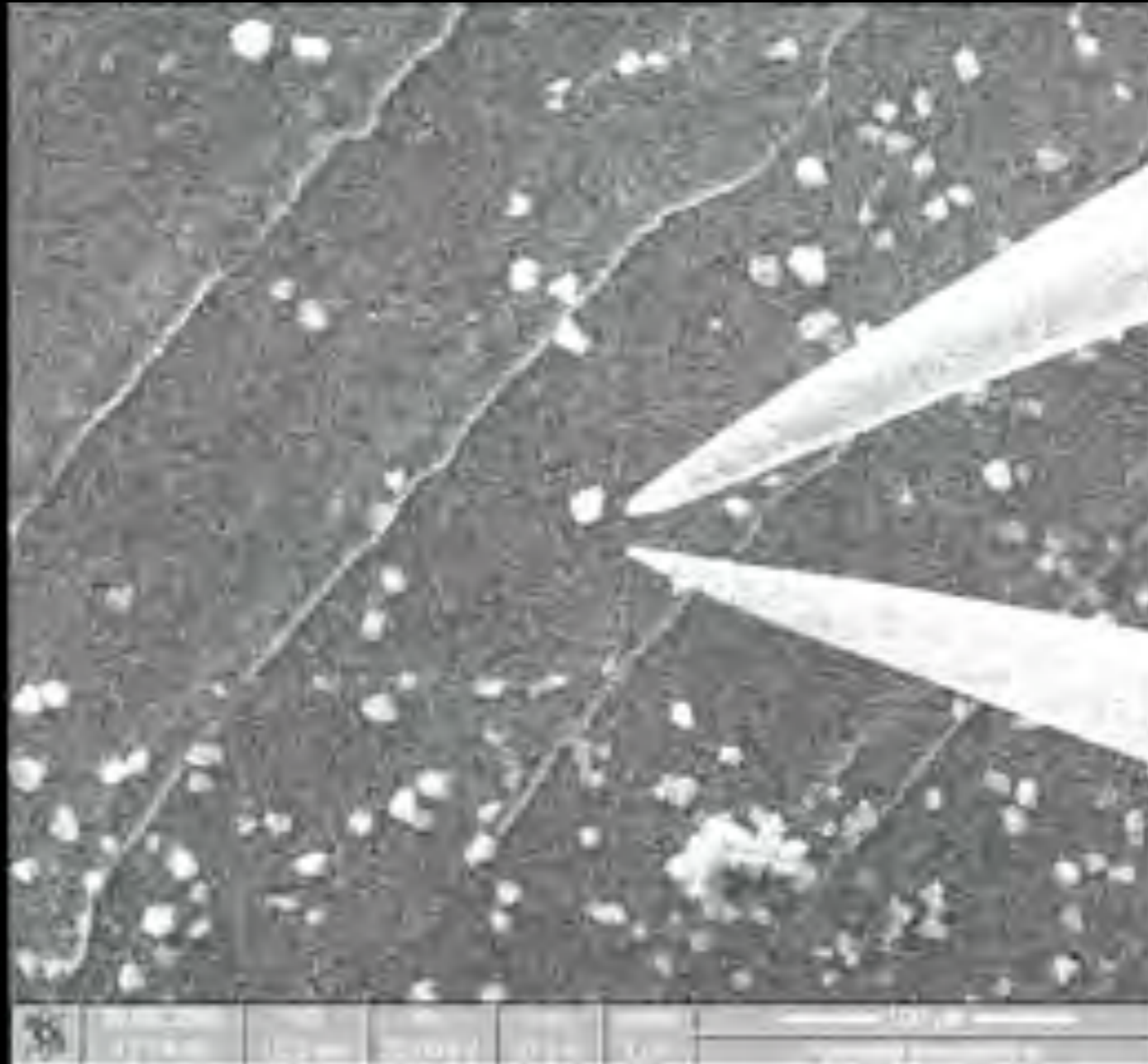
Moving 400 nm spheres



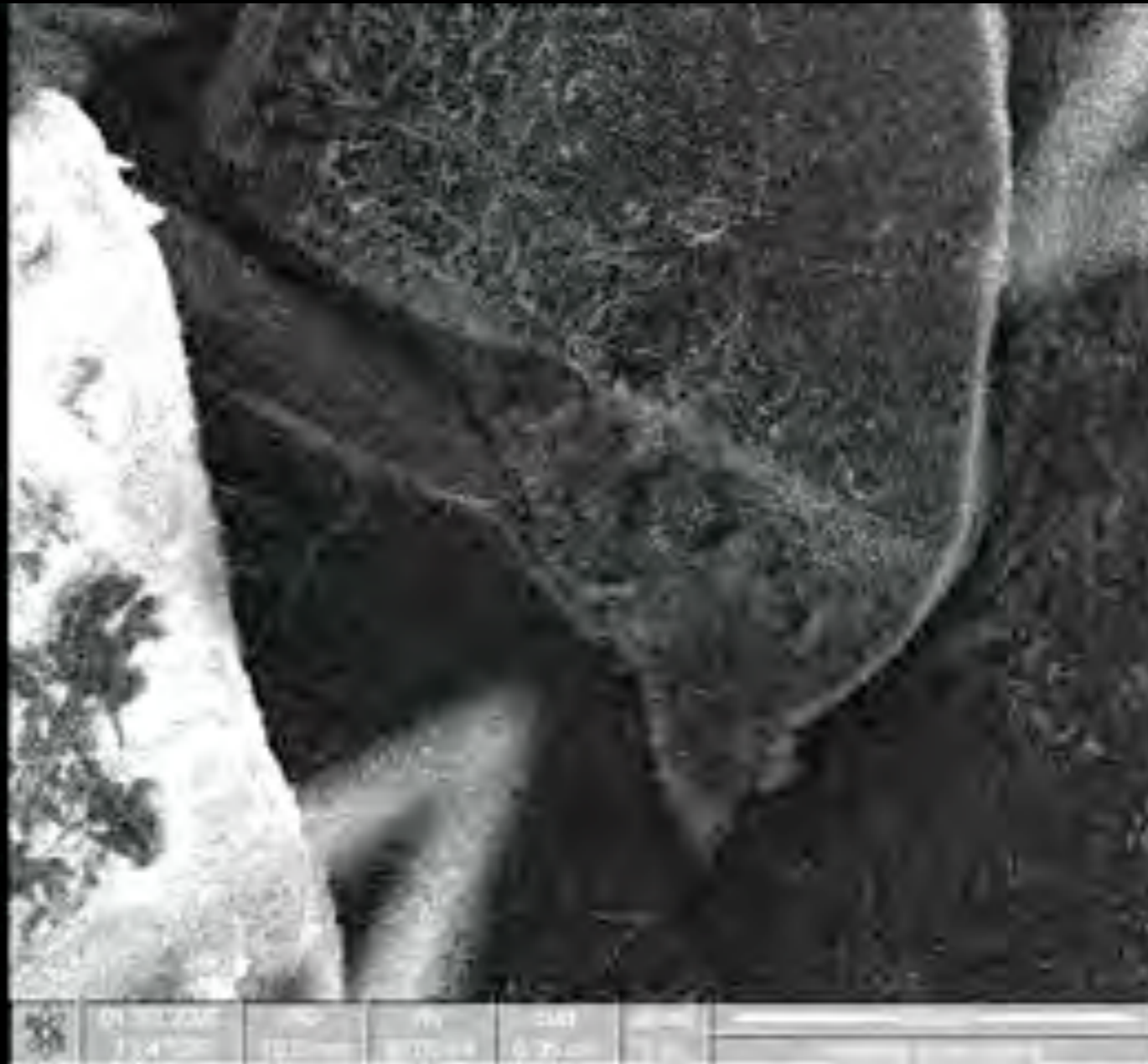
Stacking 400 nm spheres



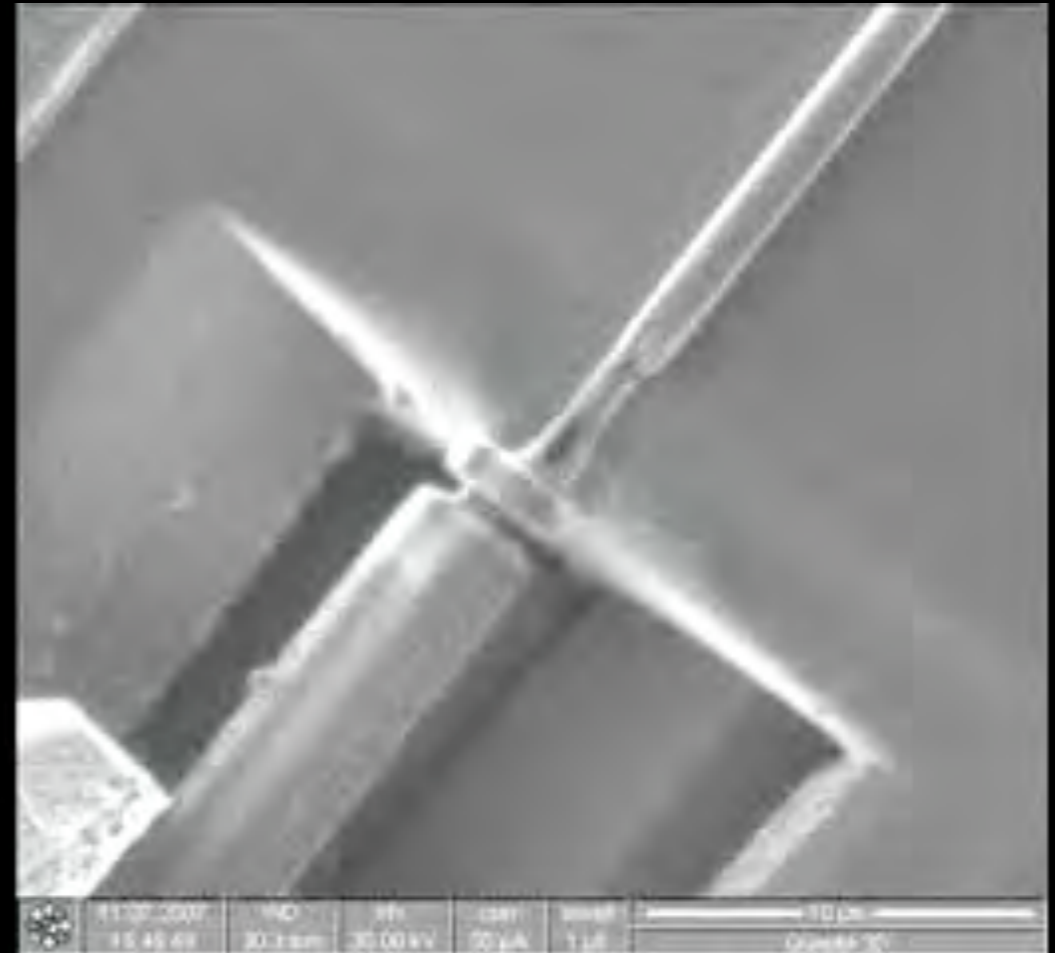
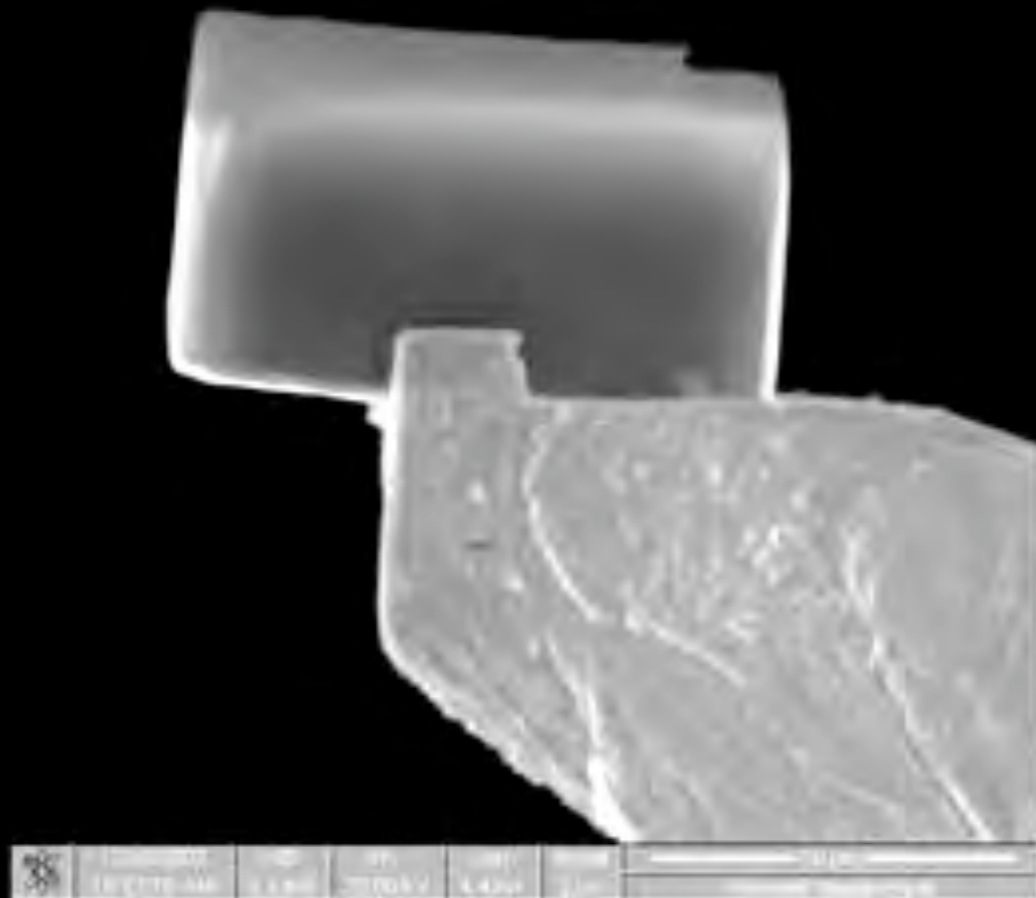
Microgripper



Pick and Place



Pick and Probe

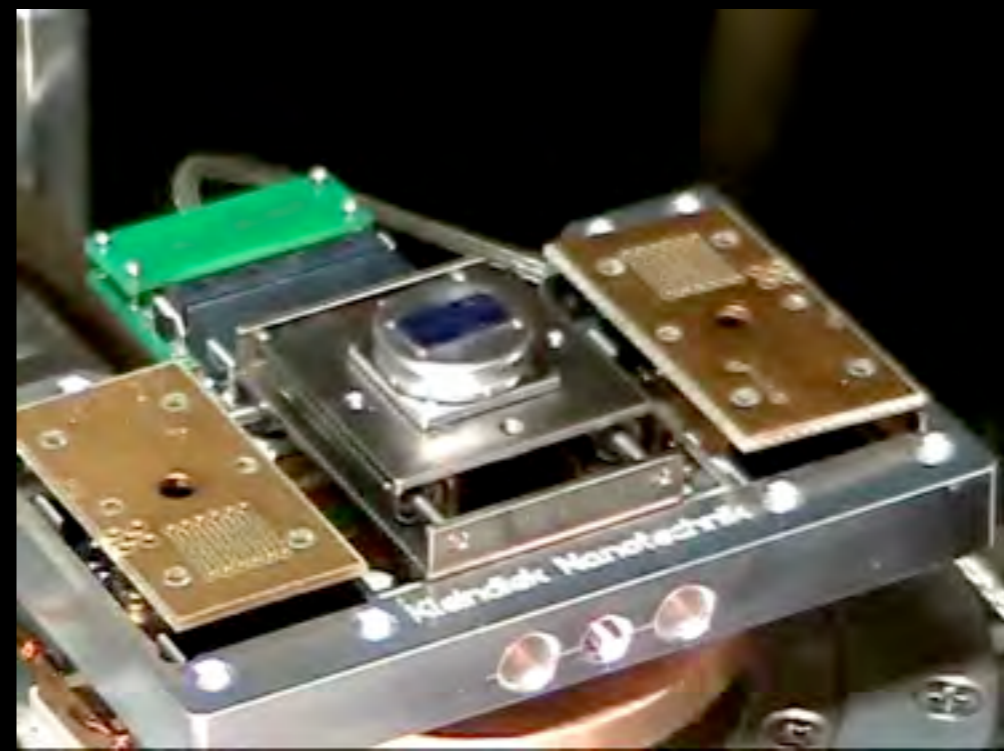
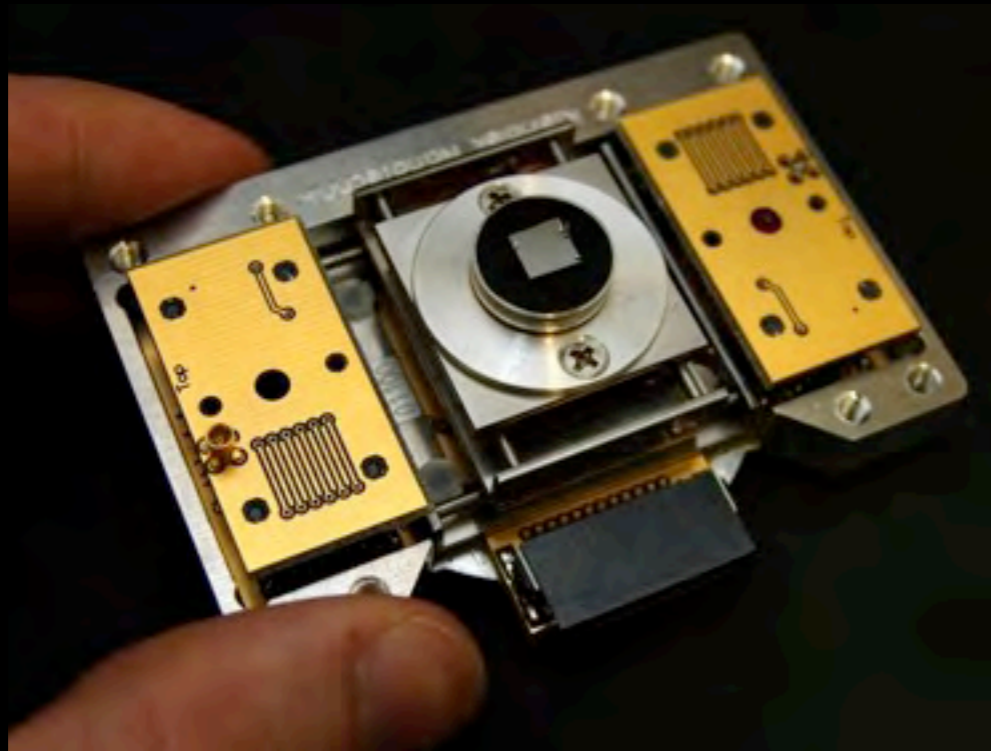


Pick and rotate



Lift Out Shuttle

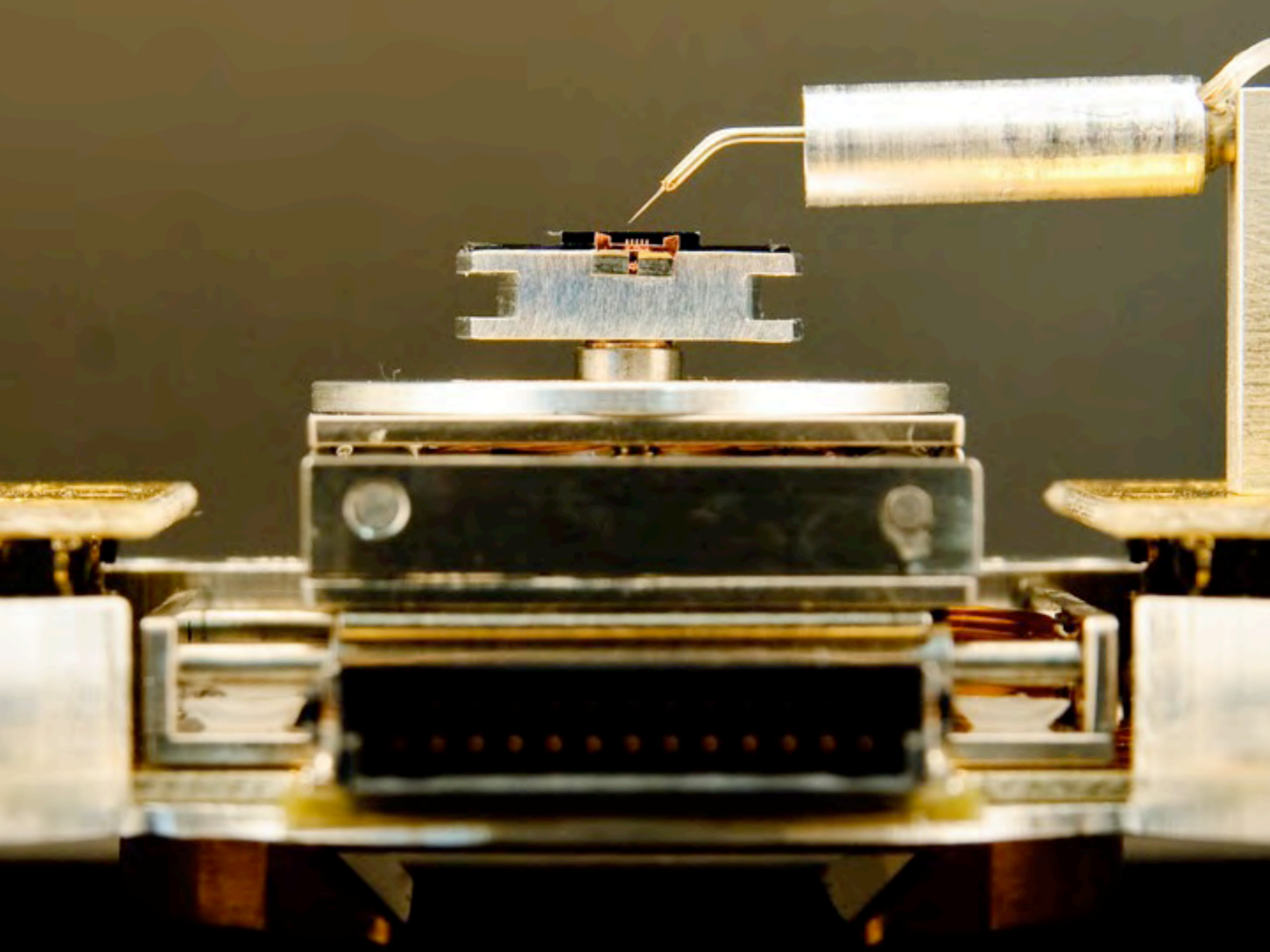
Dedicated System for TEM Sample Preparation

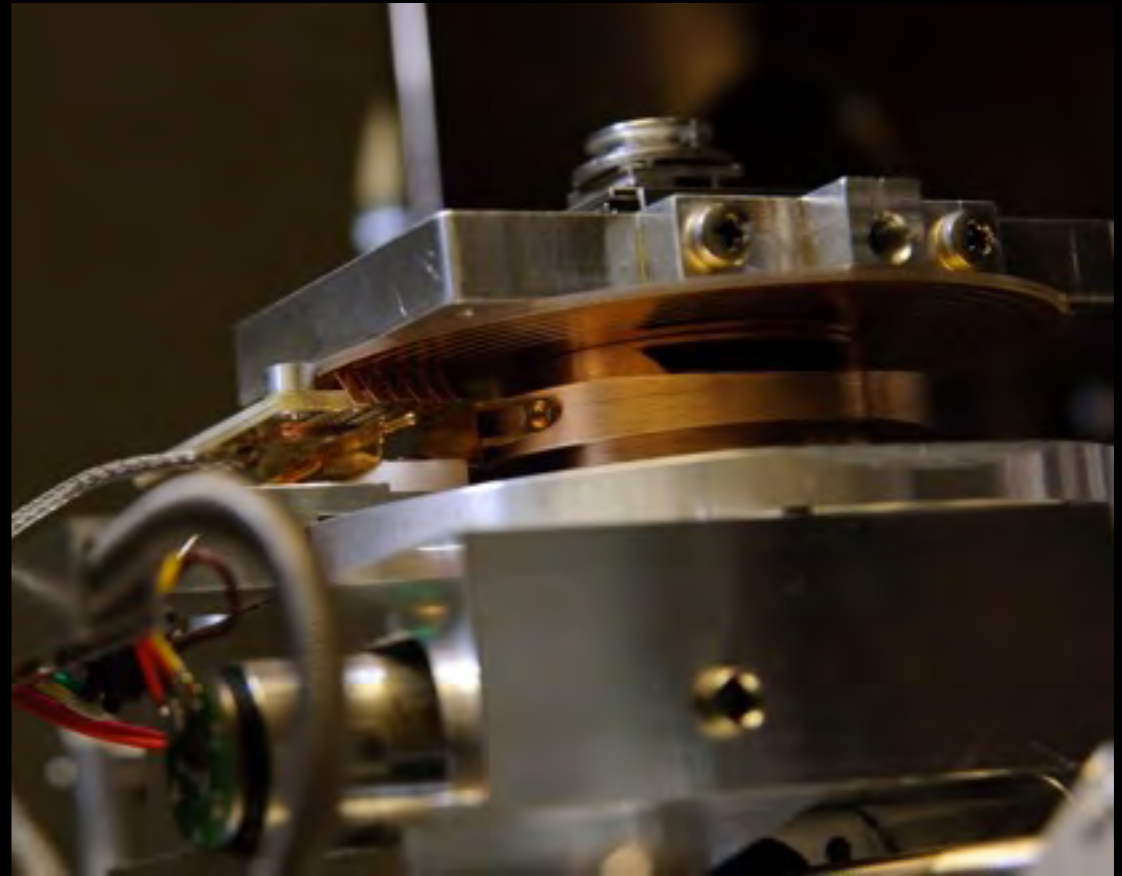
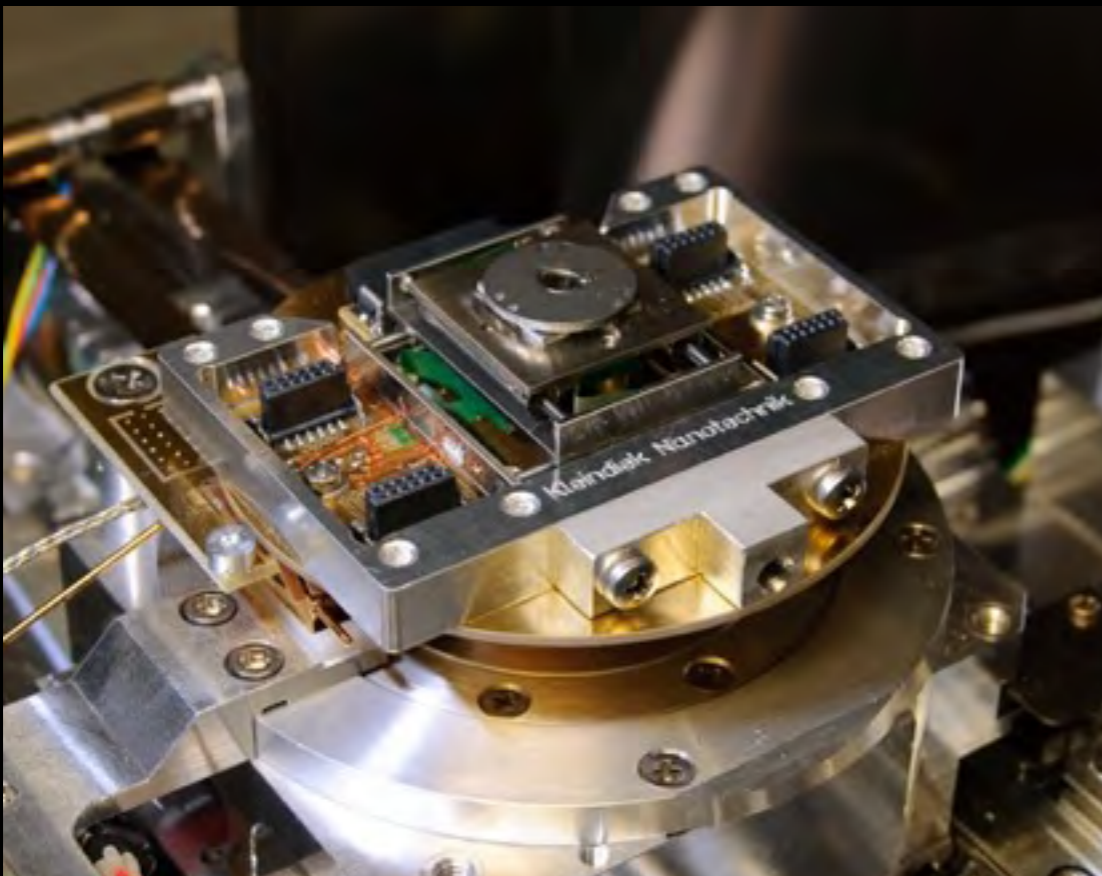
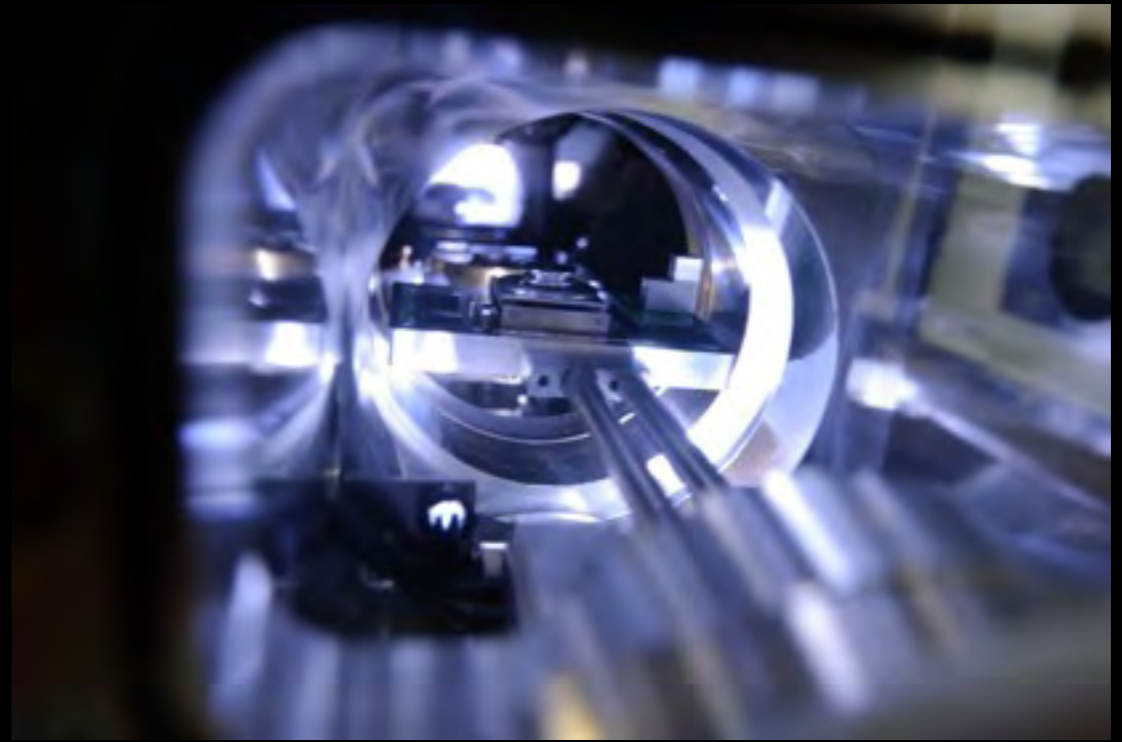
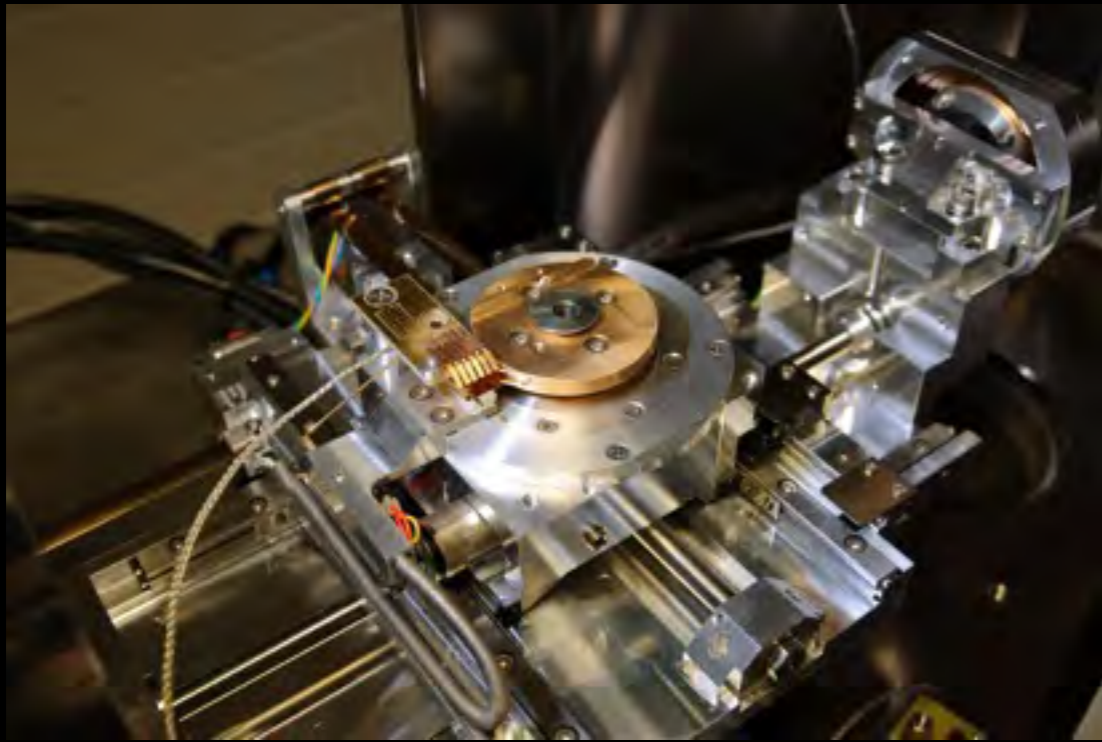


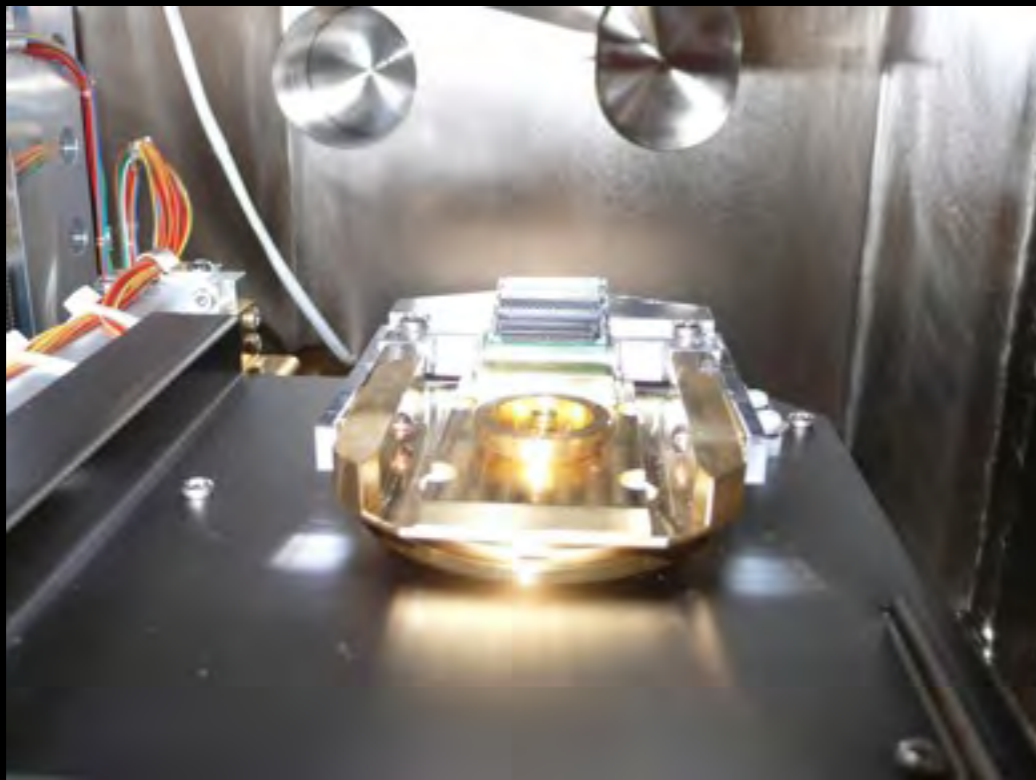
3 axis positioner

Ultra smooth movements (0.25 nm resolution)









Advantages LOS

- Whole system inside your hand
- Intuitive cartesian movements XYZ 10 mm
- Optional rotation
- Ultra smooth motion, 0.25 nm resolution
- Quick install through load lock
- Preparation under light microscope
- SemGlu, IonWelding or Pt/W



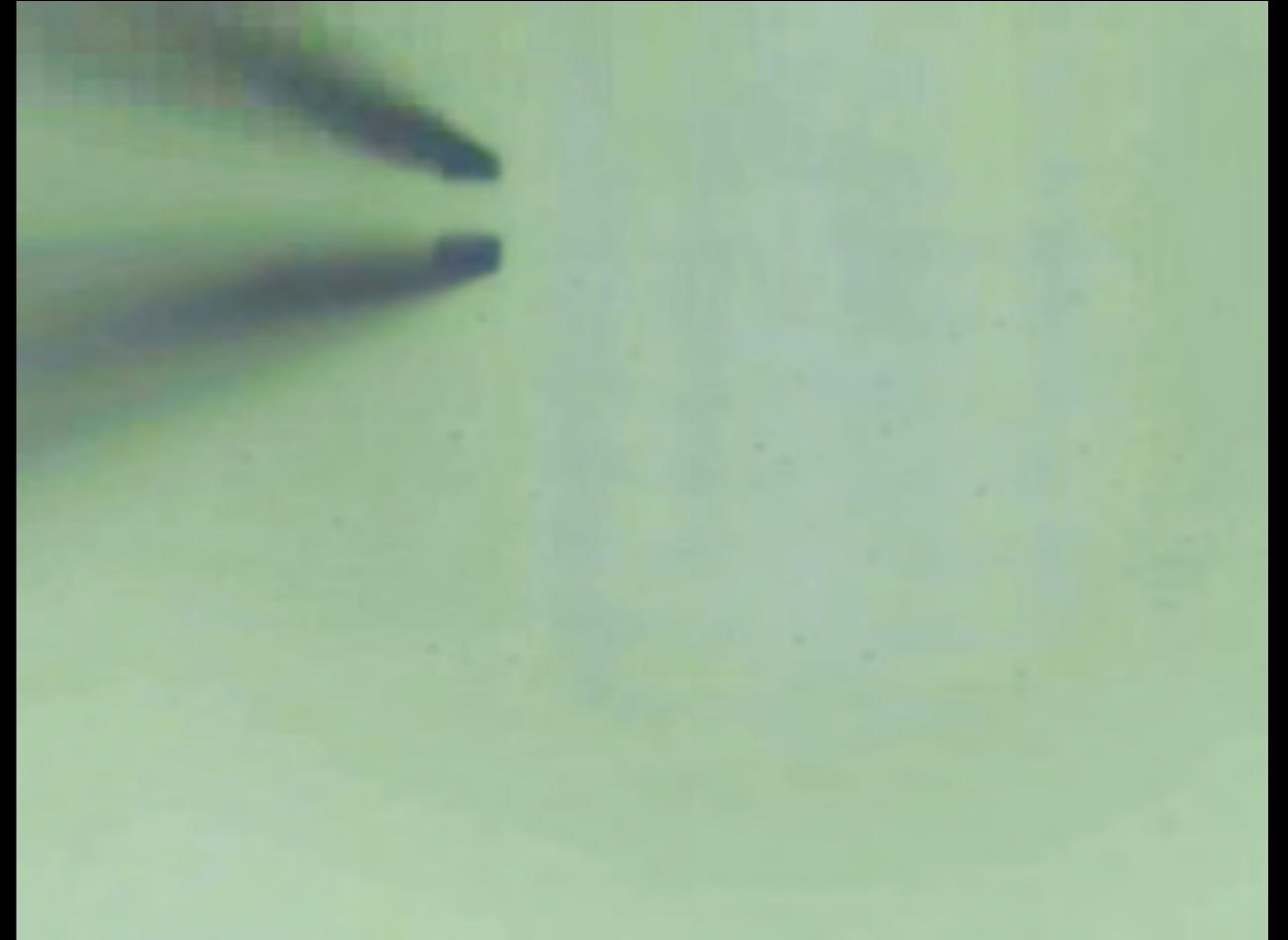
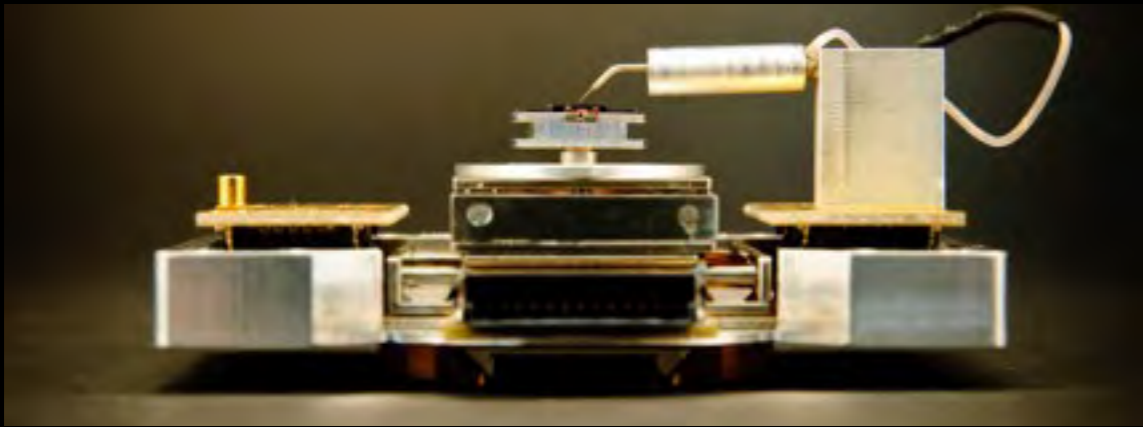
Optional SemCam



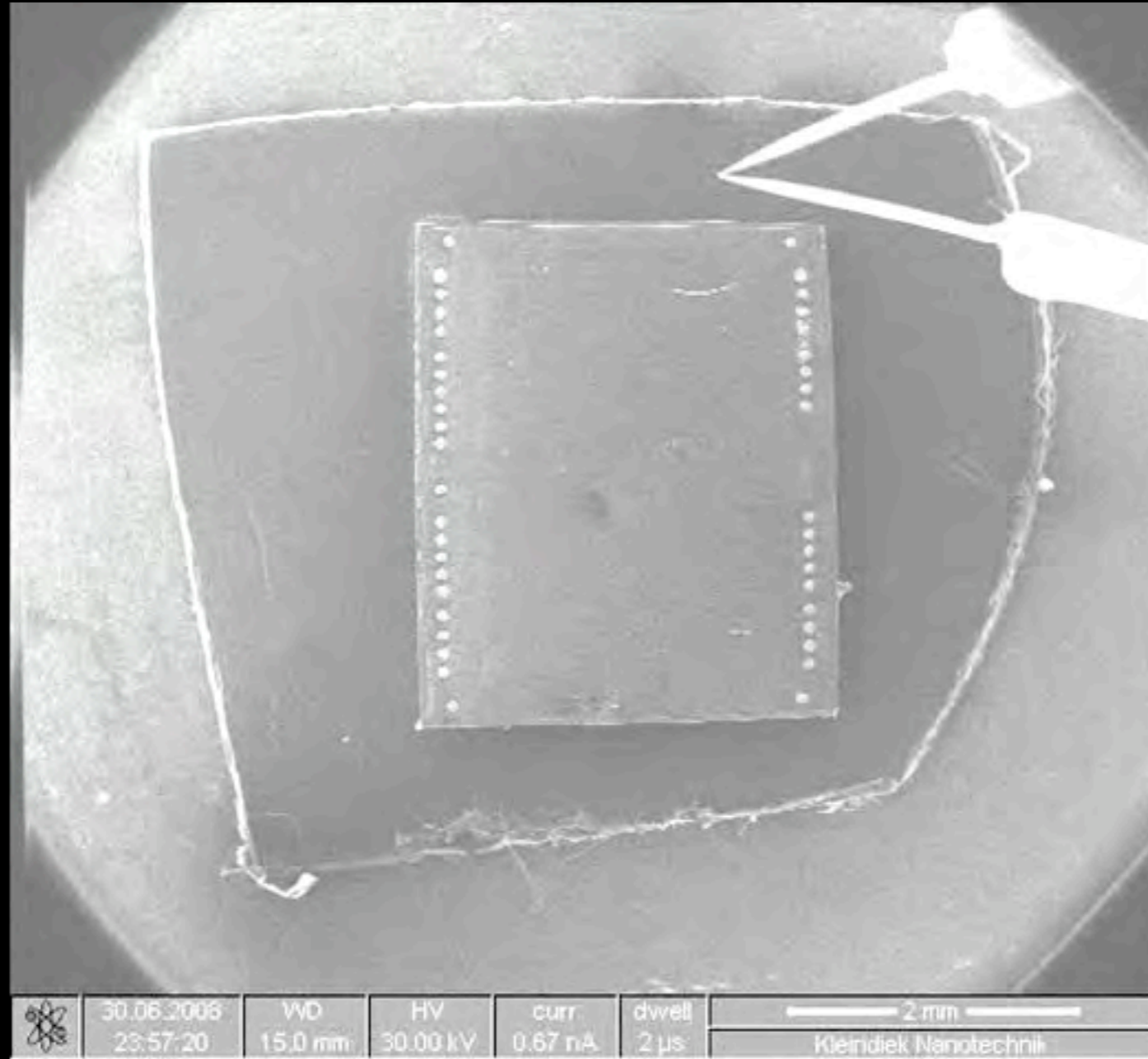
SemGlu



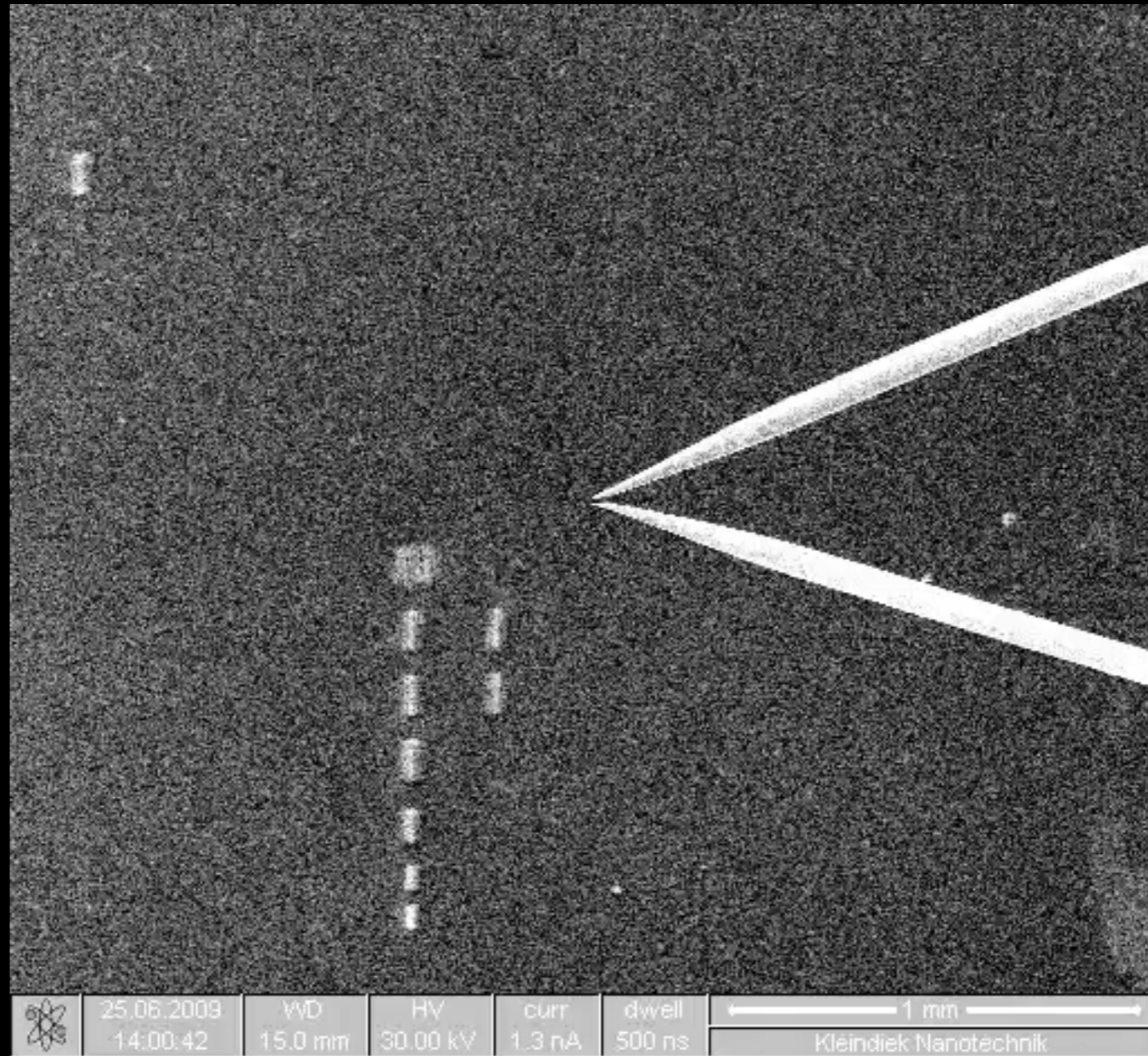
Plug-In GIS



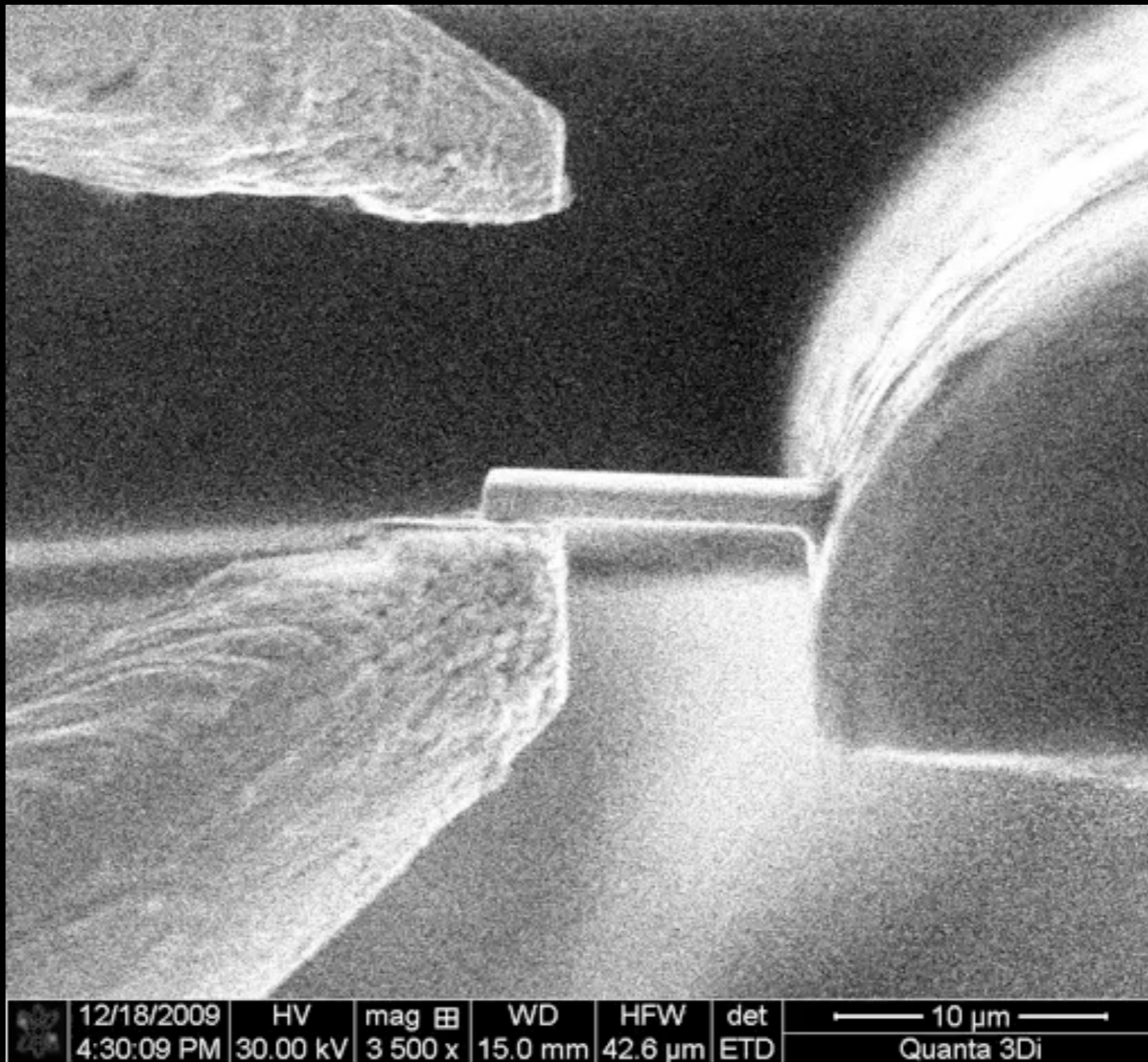
Ex-Situ Lift-Out



In-Situ Lift-Out



Liftout x3



Strength SemGlu



Lift-Out in SEM



Thank you!