JOHANNES KEPLER UNIVERSITÄT LINZ | JKU

TNF

3D-Nanodrucker

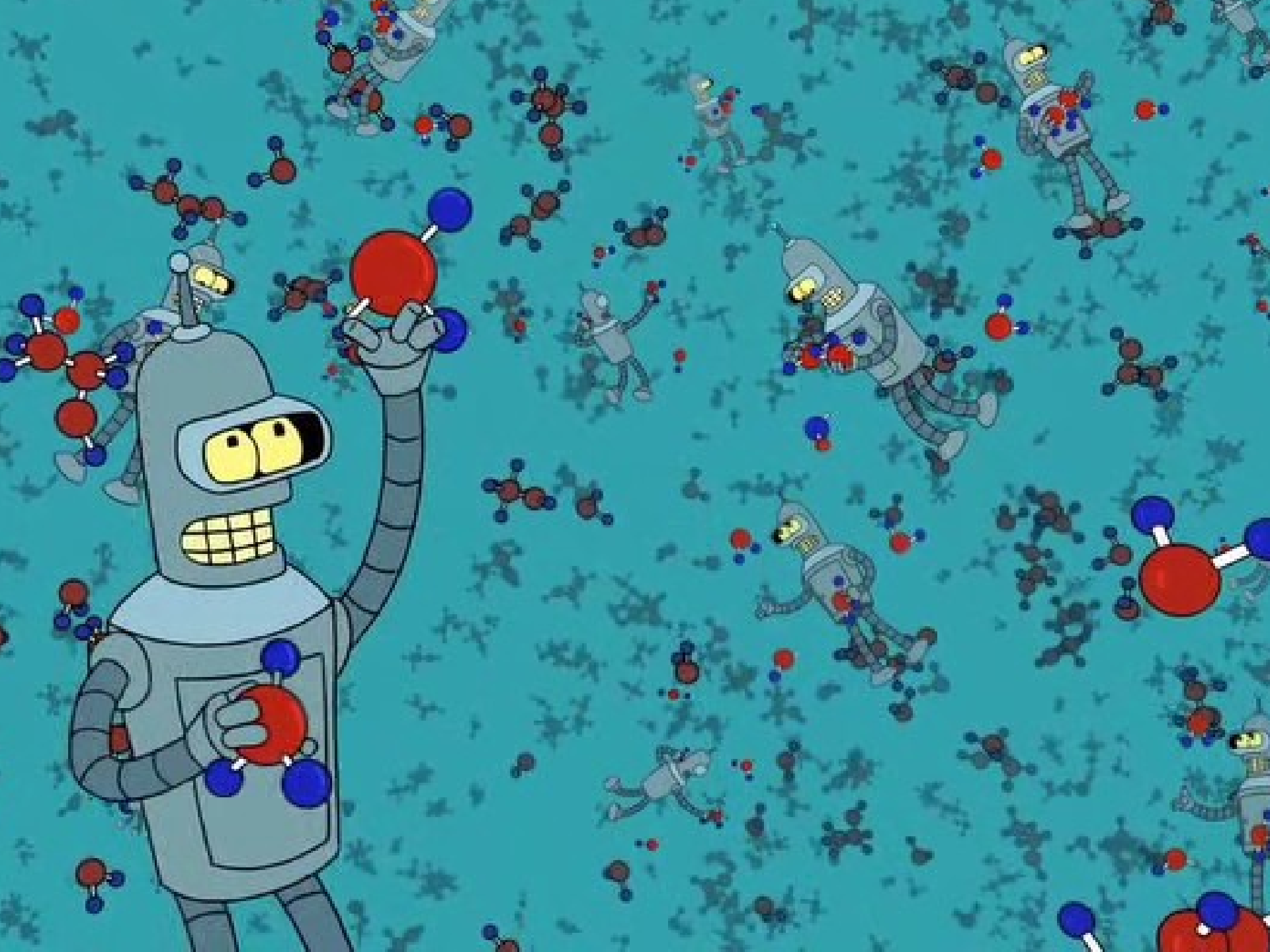
Kleiner als das Licht erlaubt?

Richard Wollhofen

Wilhelm Macke - Award

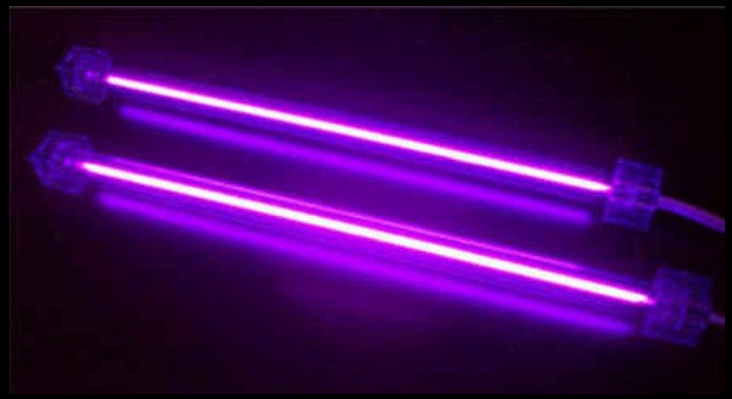
Linz, 24. April 2014

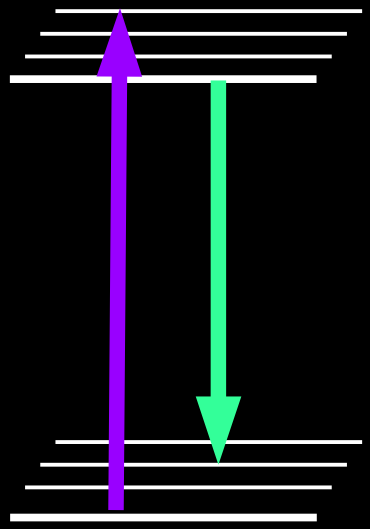
Wozu Nanotechnologie?



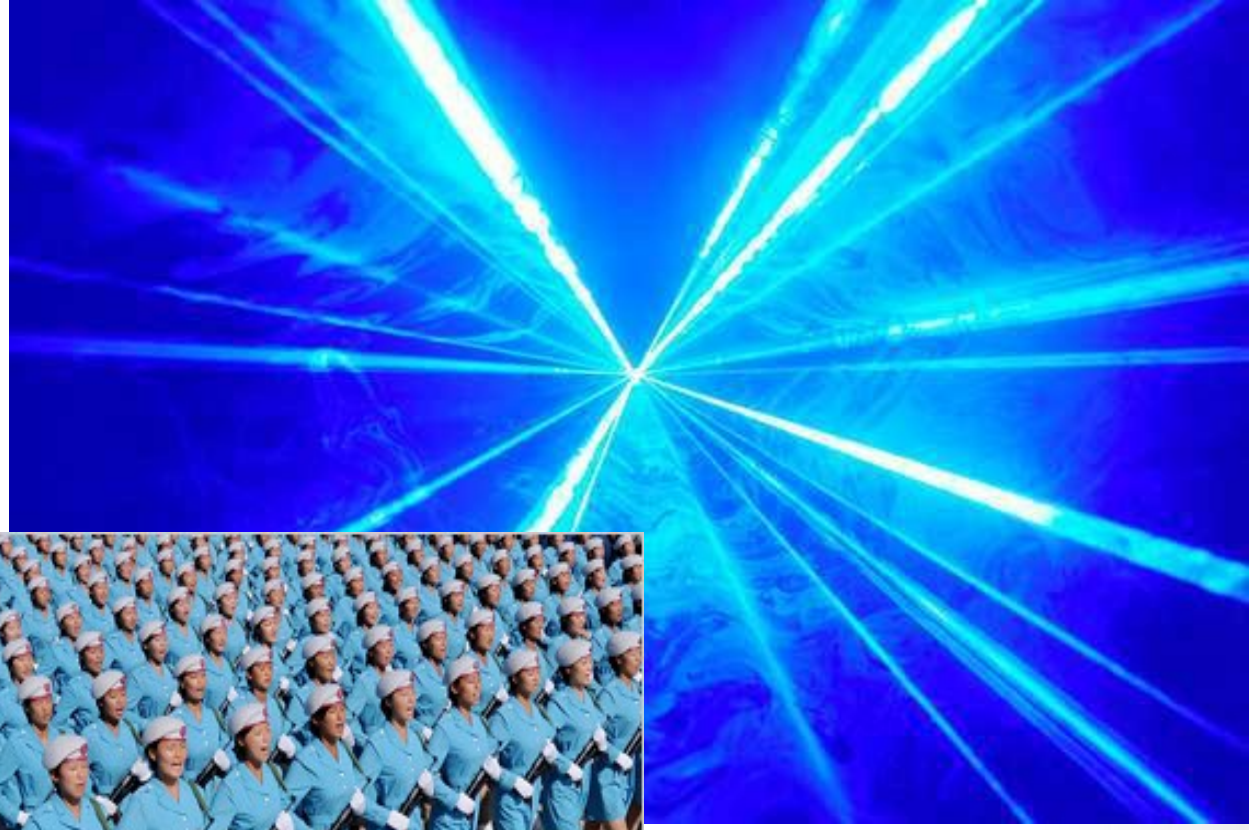
“Weiss”-Licht

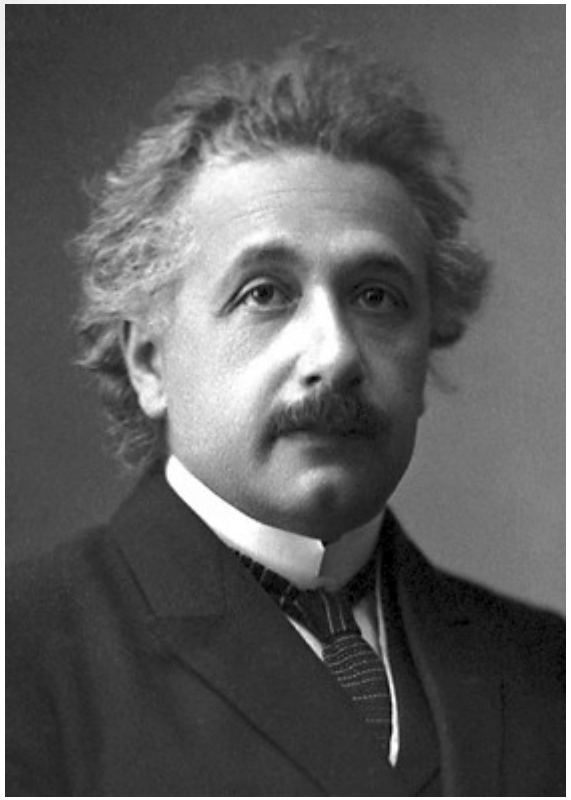
Fluoreszenz



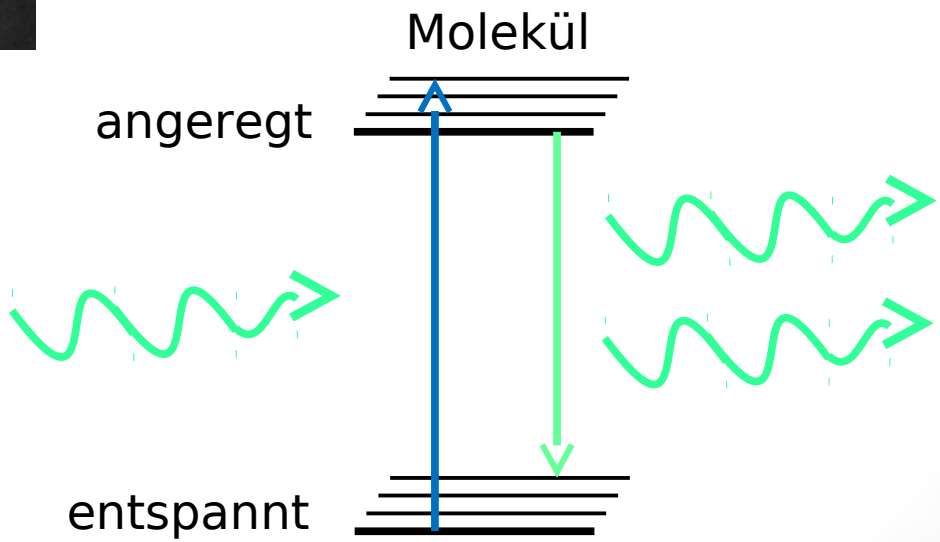


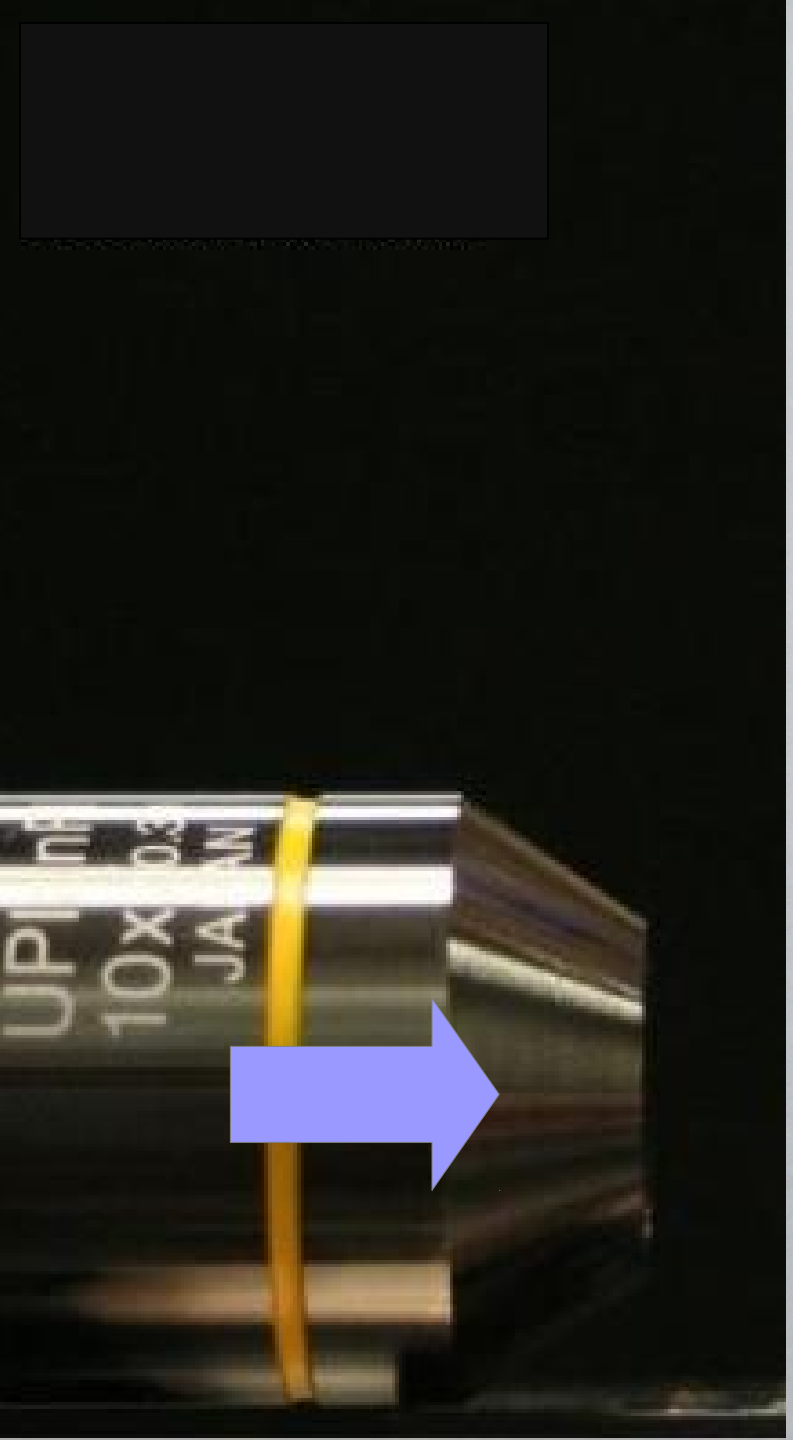
LASER

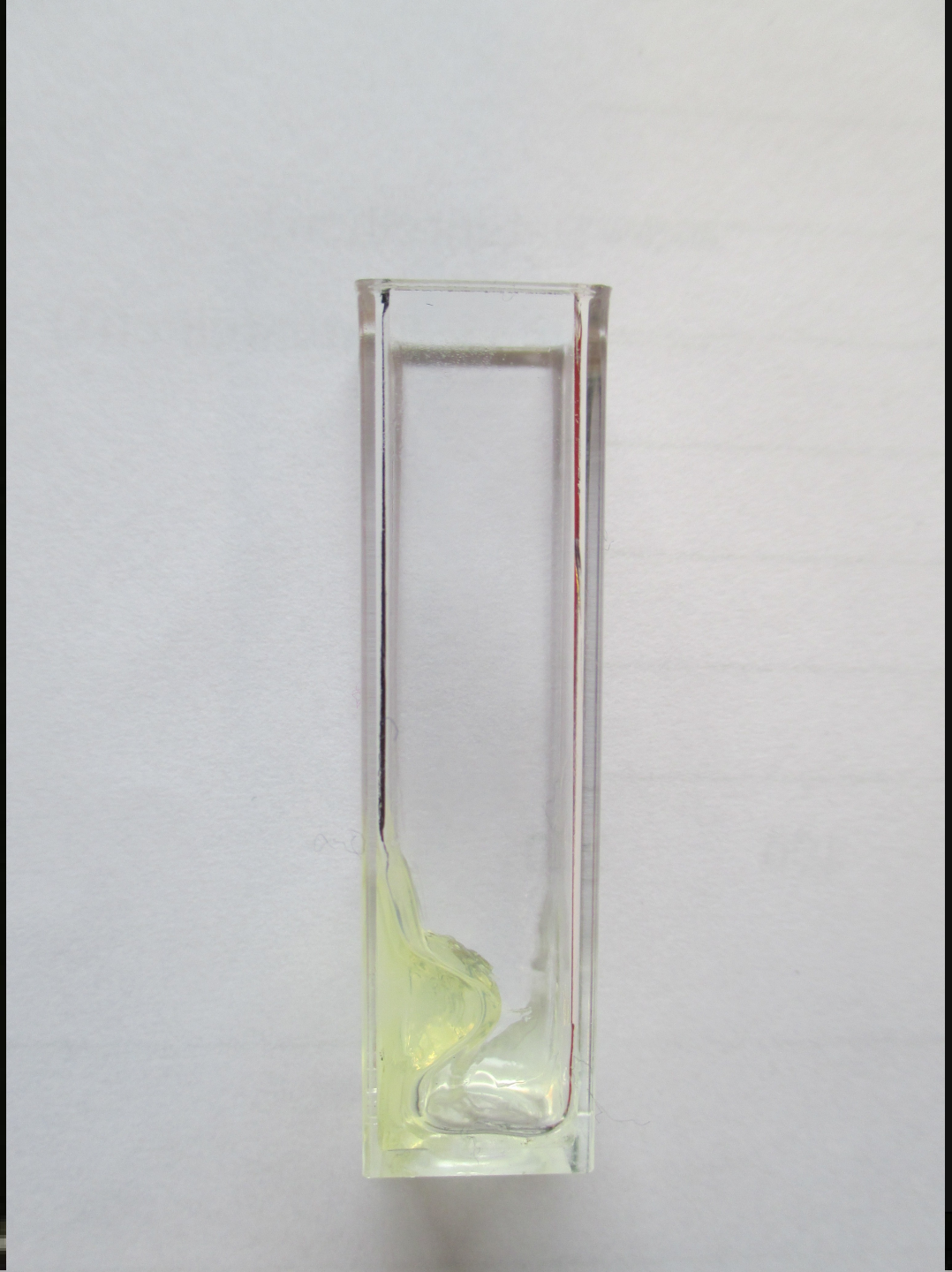


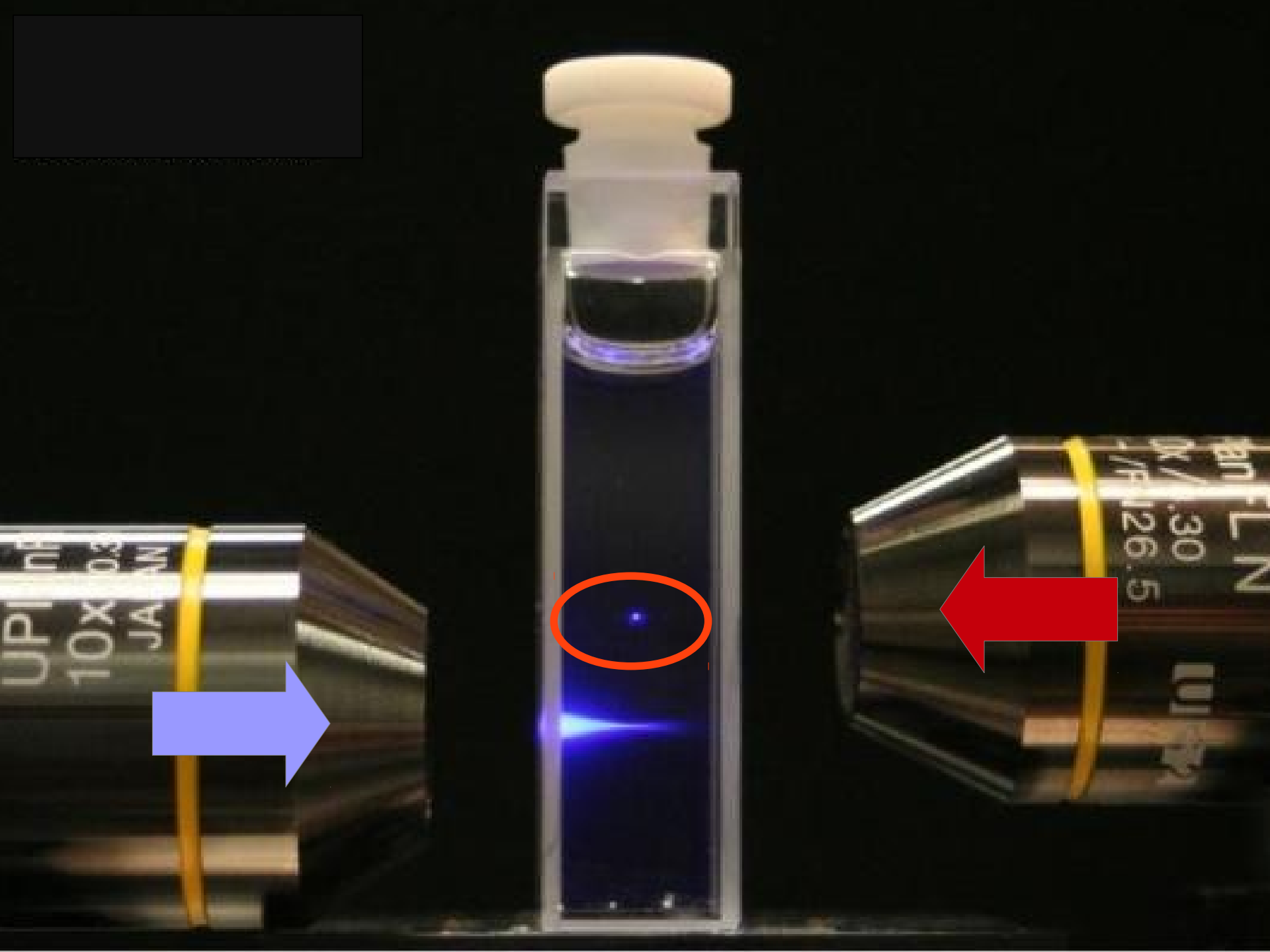


LASER



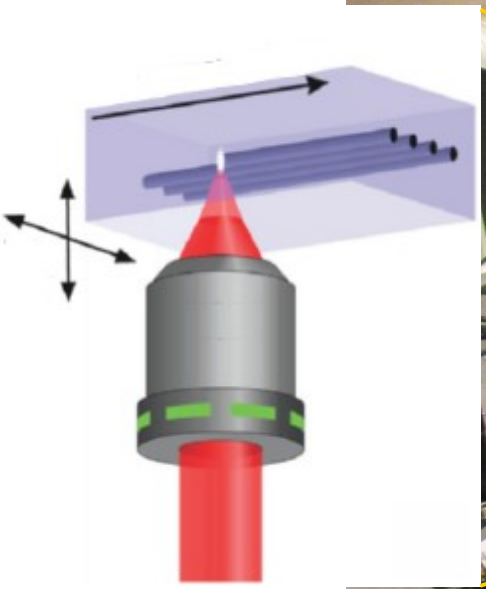

10X

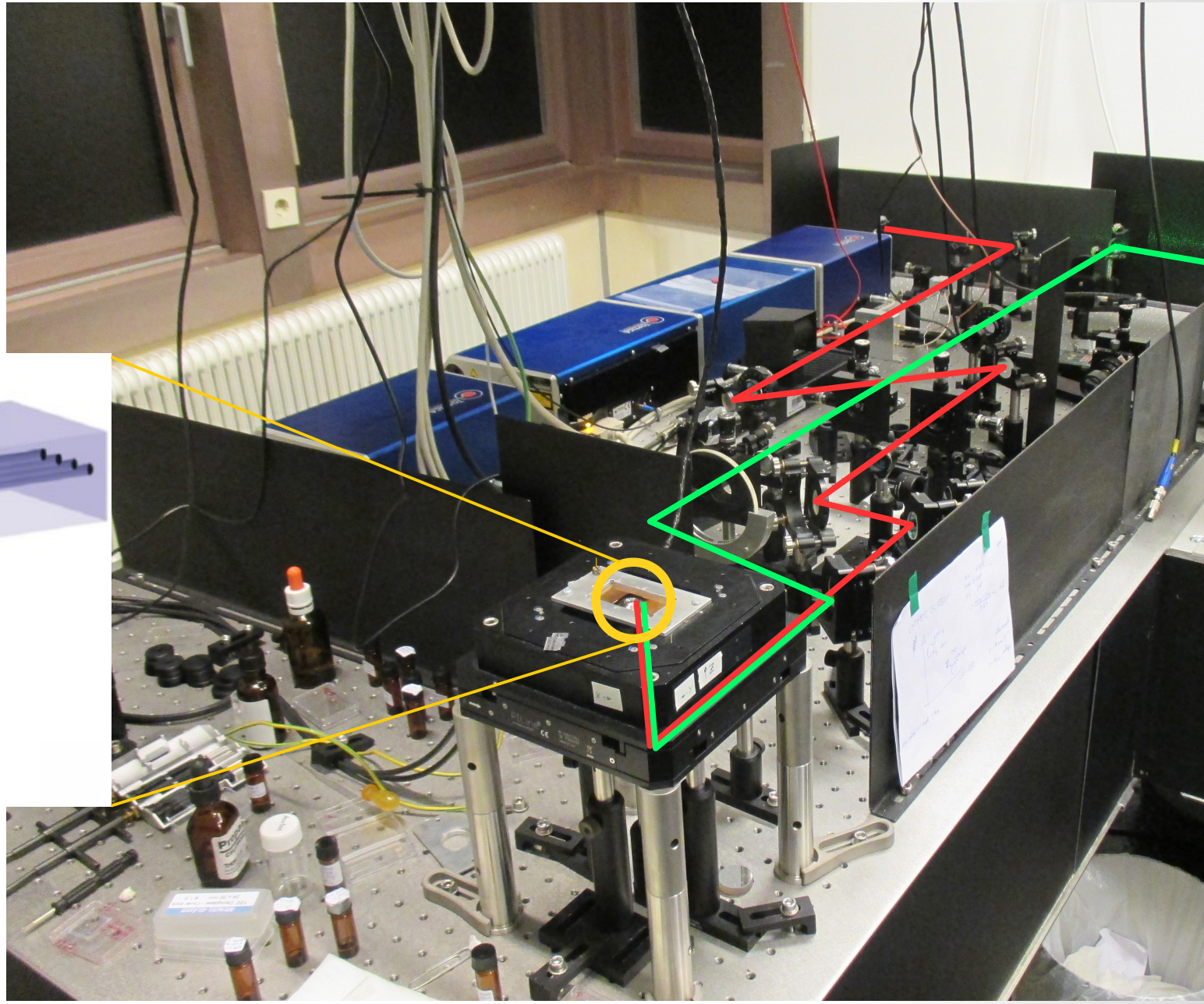


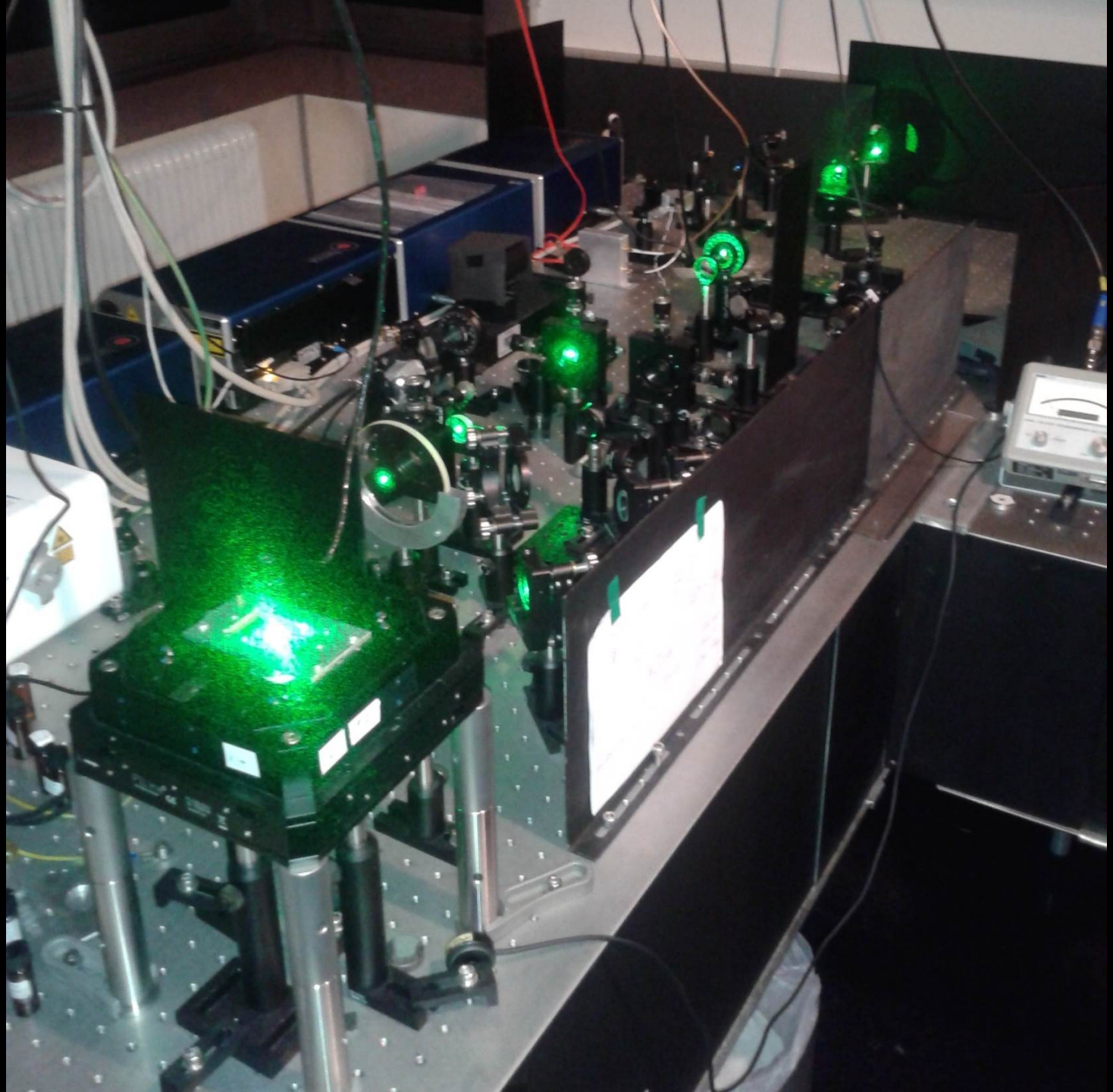

10X
26.5
30

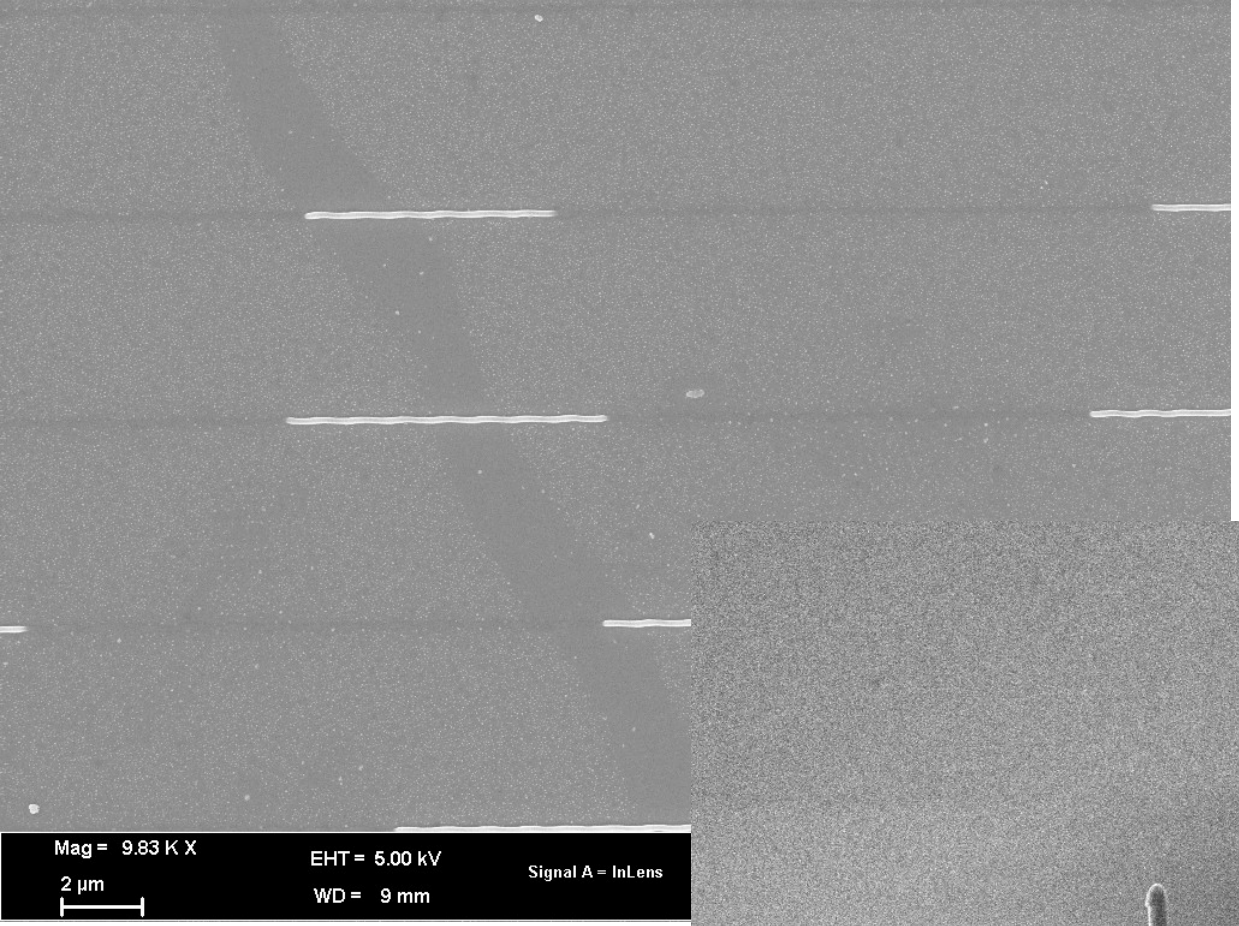
Maria Göppert-Mayr
Nobelpreis Physik

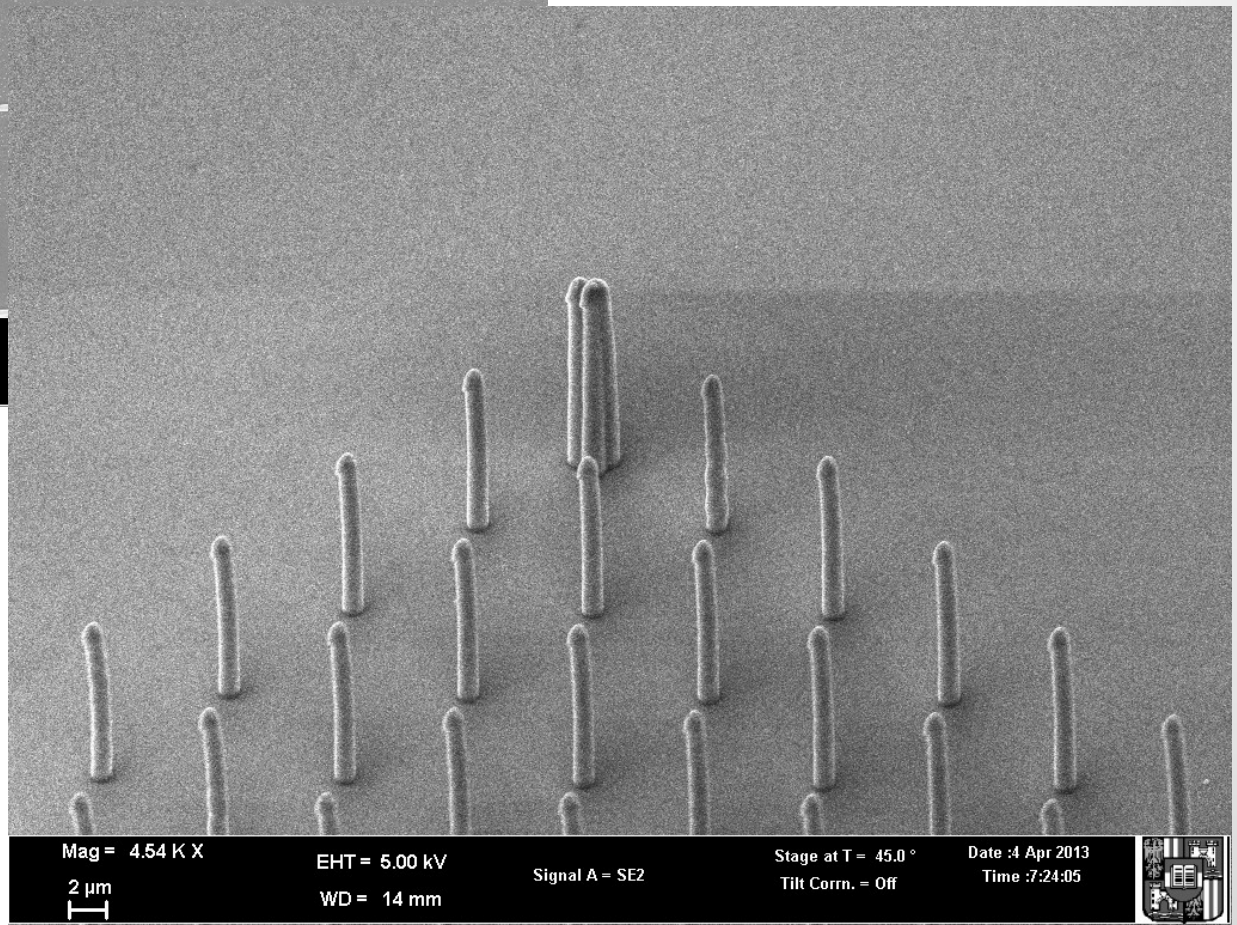
0,000 000 000 000 1 s = 100 femto sekunden

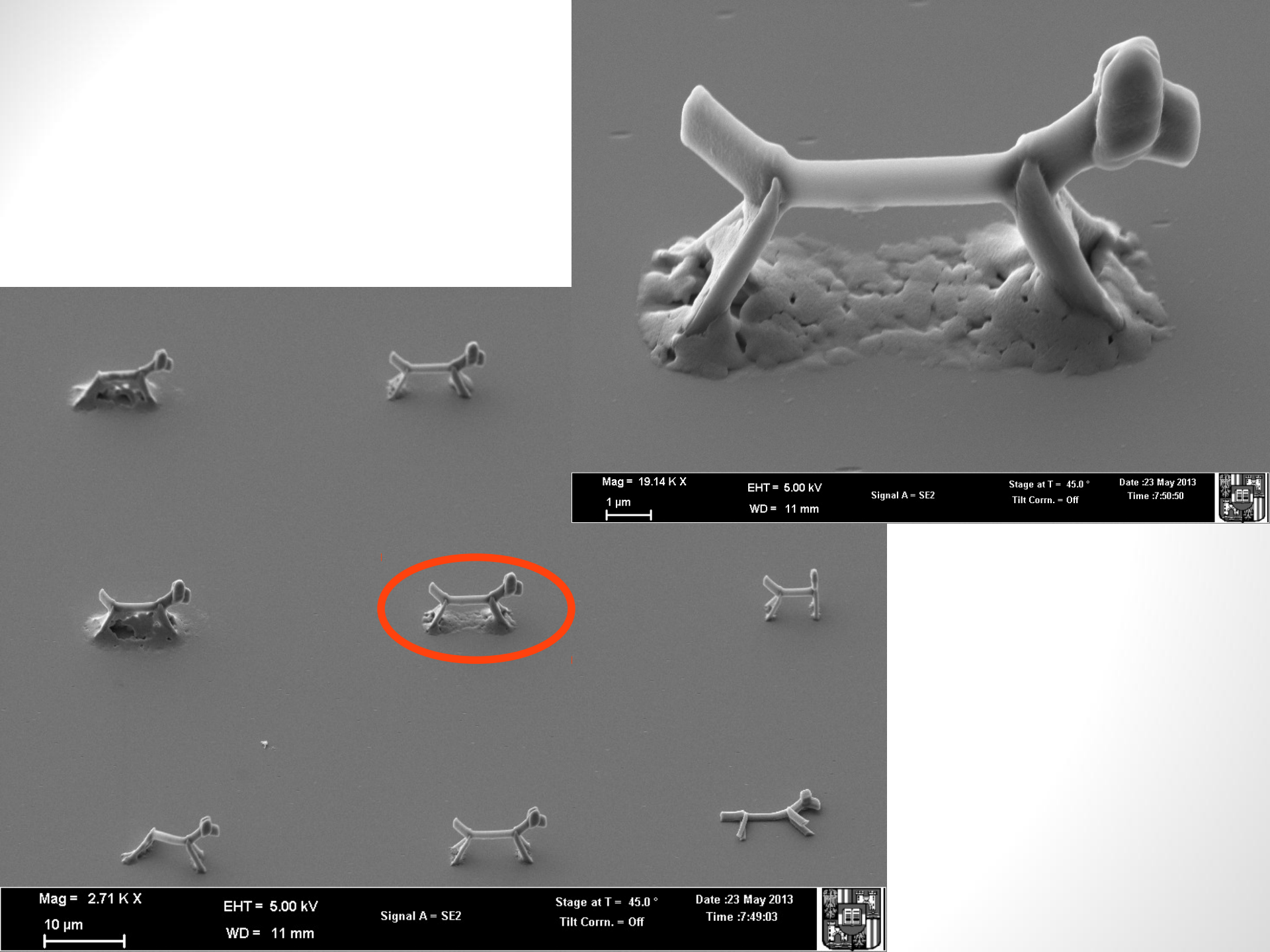


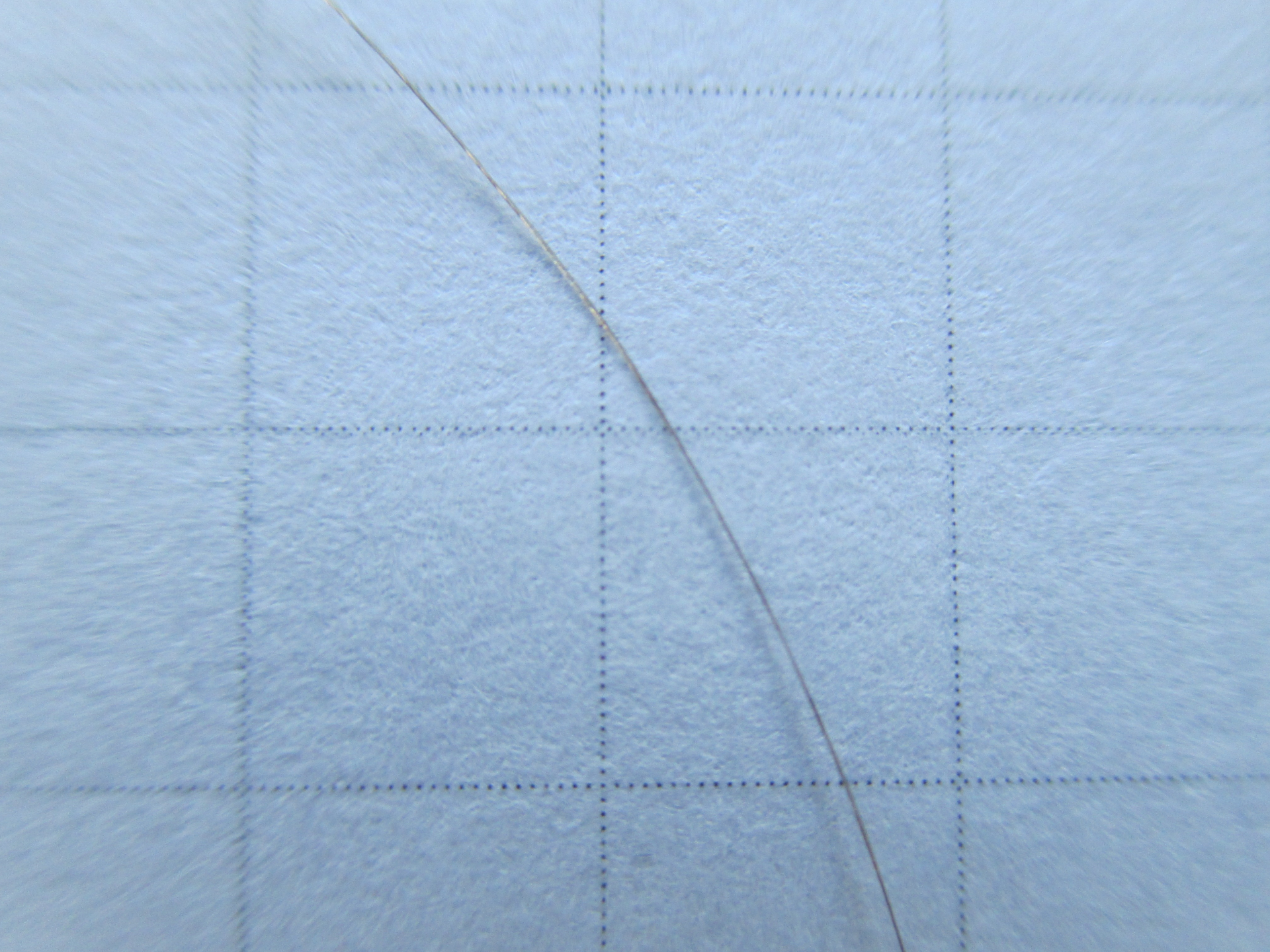


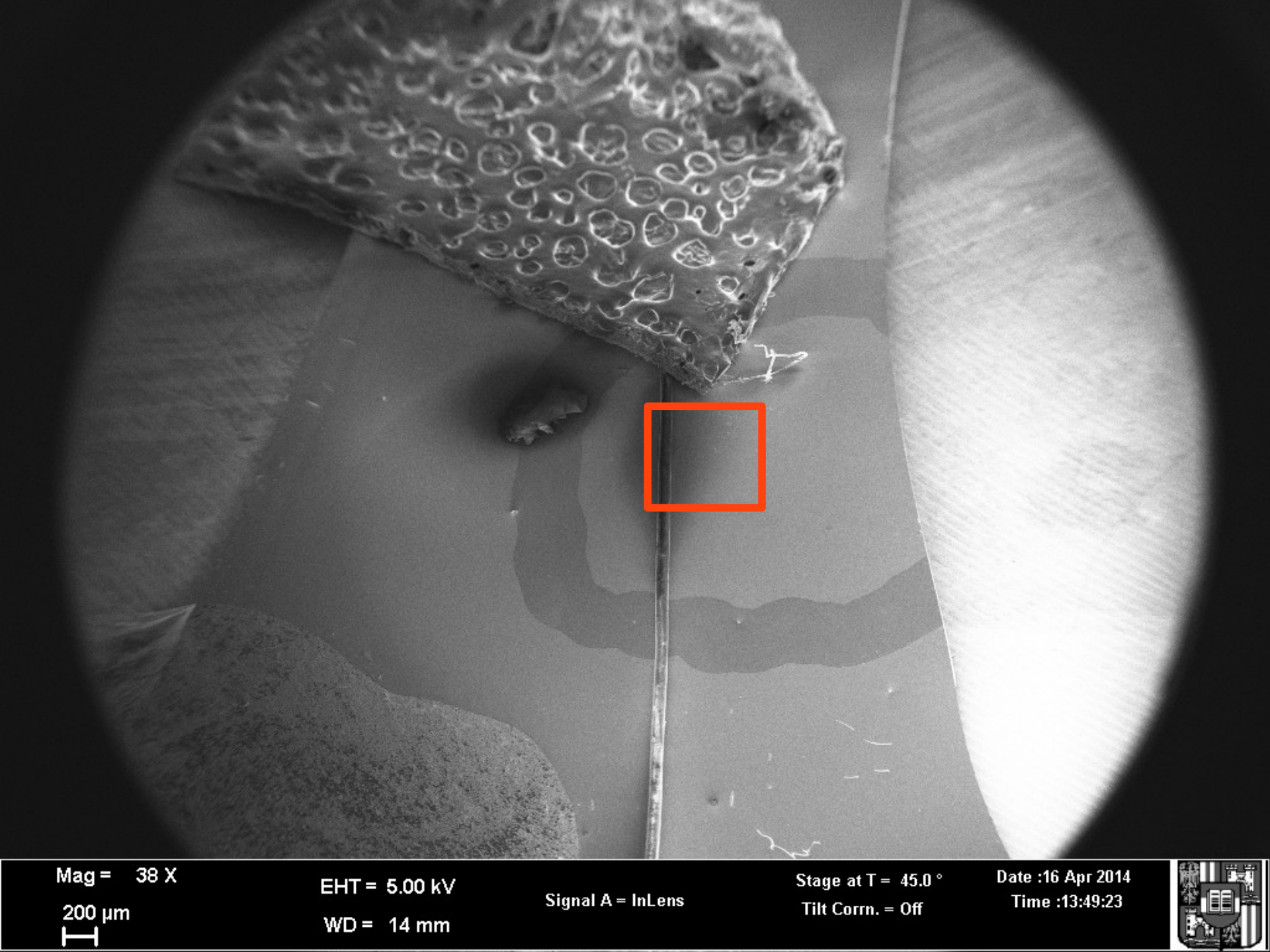


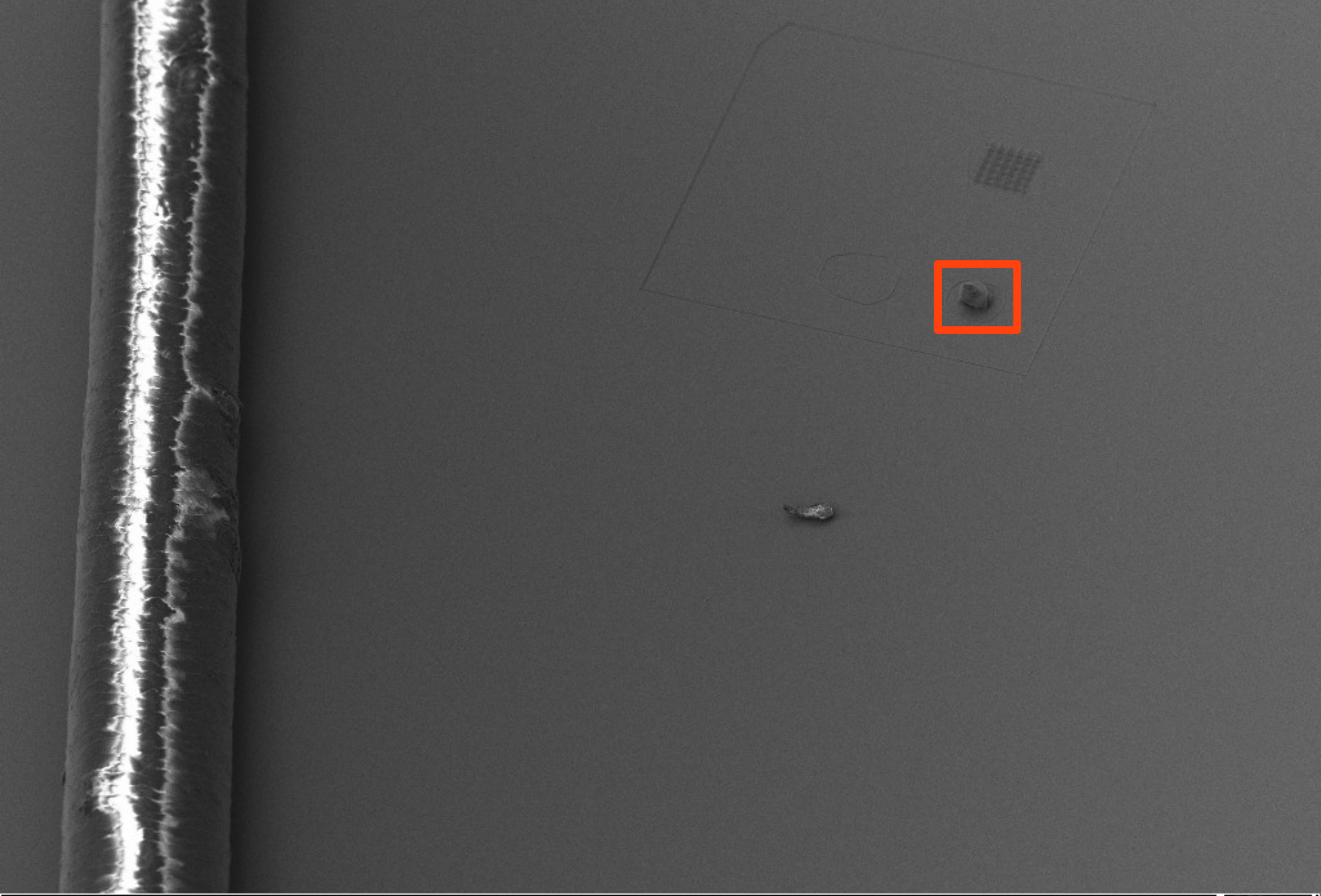

Mag = 9.83 K X
2 µm
EHT = 5.00 kV
WD = 9 mm
Signal A = InLens

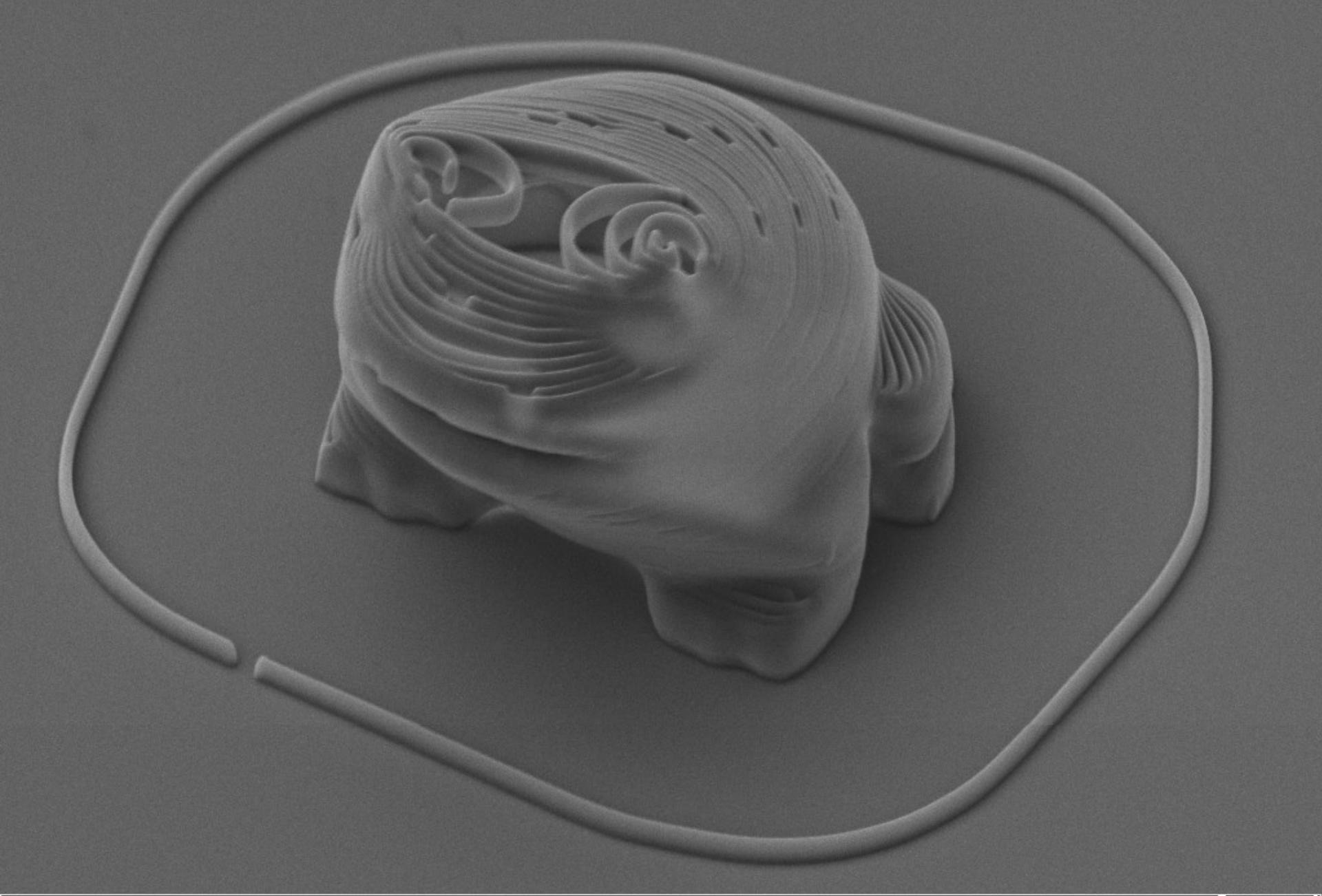

Mag = 4.54 K X
2 µm
EHT = 5.00 kV
WD = 14 mm
Signal A = SE2
Stage at T = 45.0 °
Tilt Corrn. = Off
Date :4 Apr 2013
Time :7:24:05


Mag = 19.14 K X
1 µm
EHT = 5.00 kV
WD = 11 mm
Signal A = SE2
Stage at T = 45.0 °
Tilt Corrn. = Off
Date :23 May 2013
Time :7:50:50
Mag = 2.71 K X
10 µm
EHT = 5.00 kV
WD = 11 mm
Signal A = SE2
Stage at T = 45.0 °
Tilt Corrn. = Off
Date :23 May 2013
Time :7:49:03



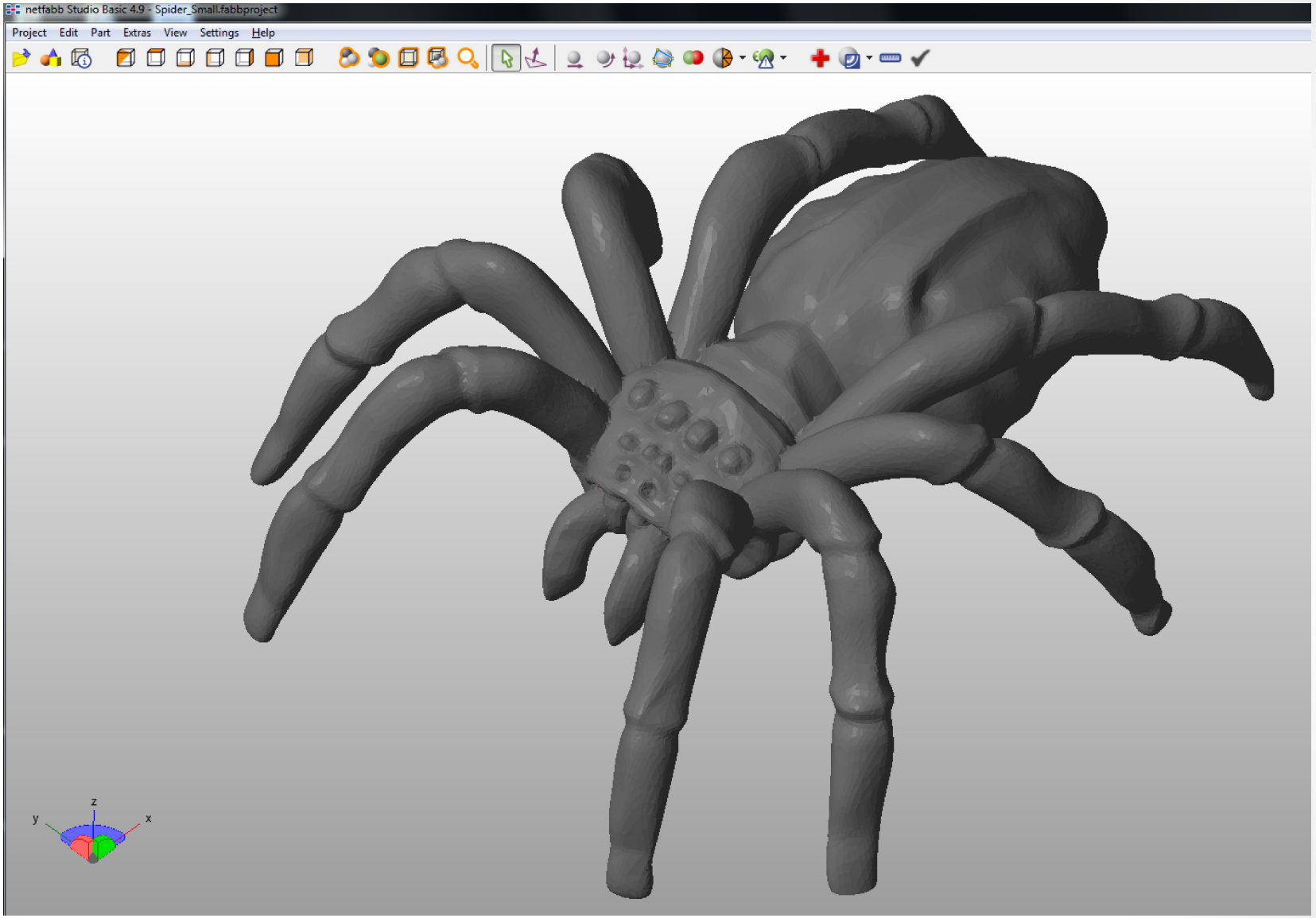

Mag = 38 X
200 µm
EHT = 5.00 kV
WD = 14 mm
Signal A = InLens
Stage at T = 45.0 °
Tilt Corrn. = Off
Date :16 Apr 2014
Time :13:49:23


Mag = 461 X
20 µm
EHT = 5.00 kV
WD = 14 mm
Signal A = SE2
Stage at T = 45.0 °
Tilt Corrn. = Off
Date :16 Apr 2014
Time :13:52:02


Mag = 8.83 K X
1 µm
EHT = 5.00 kV
WD = 14 mm
Signal A = SE2
Stage at T = 45.0 °
Tilt Corrn. = Off
Date :16 Apr 2014
Time :13:53:17

Do It Yourself - 3D-Drucker

- 3D Modell
- Software
- 3D Drucker (ab ~300 $)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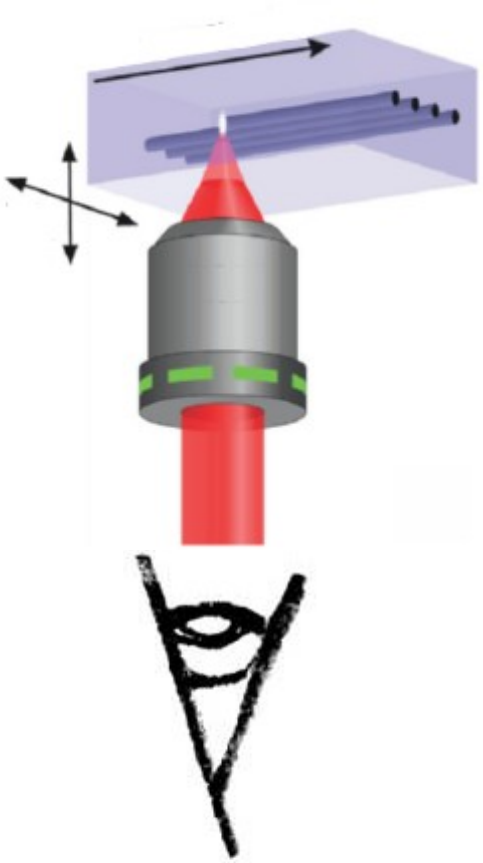
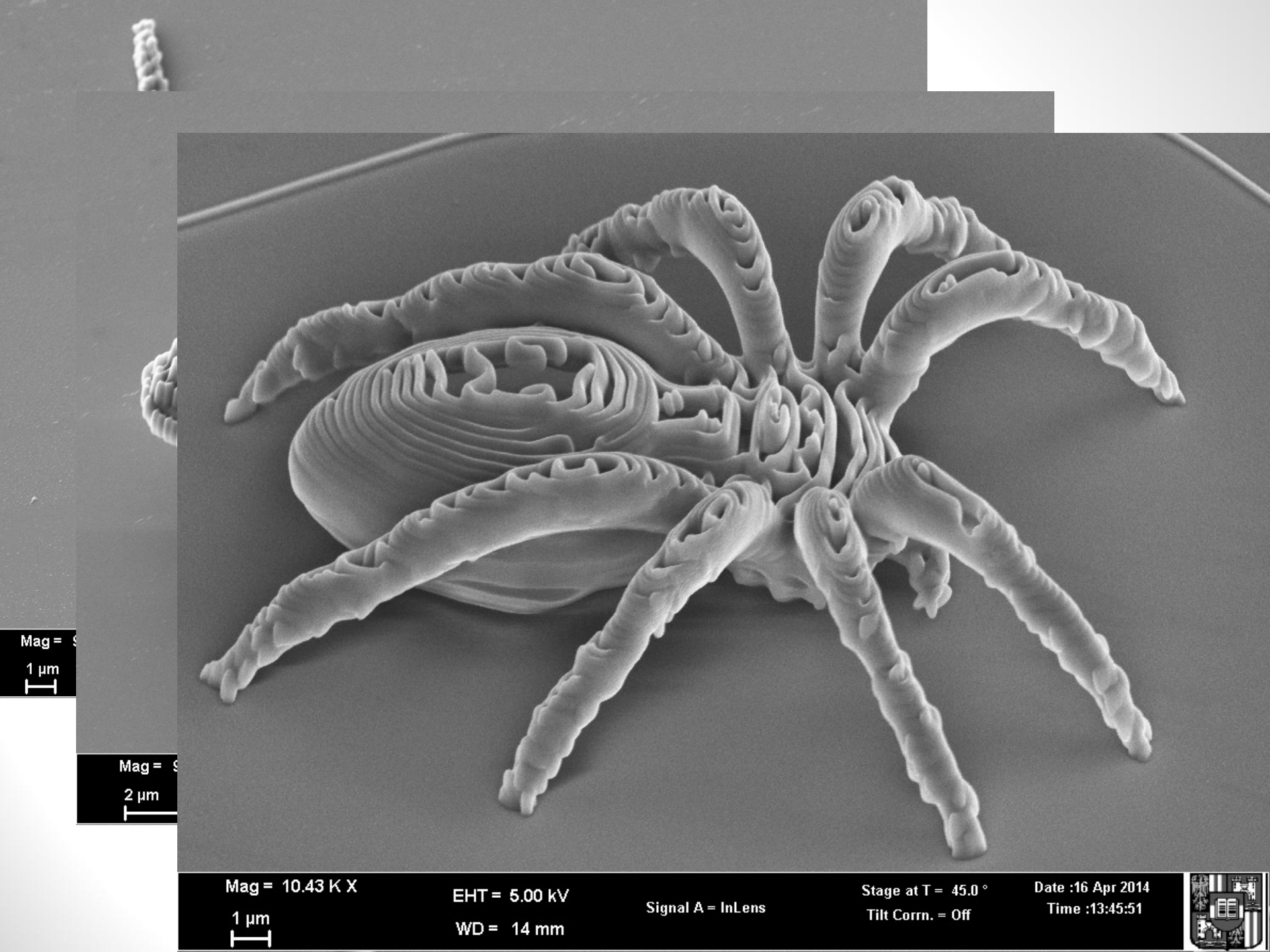
Project
Edit
Part
Extras
View
Settings
Help
z
y
x

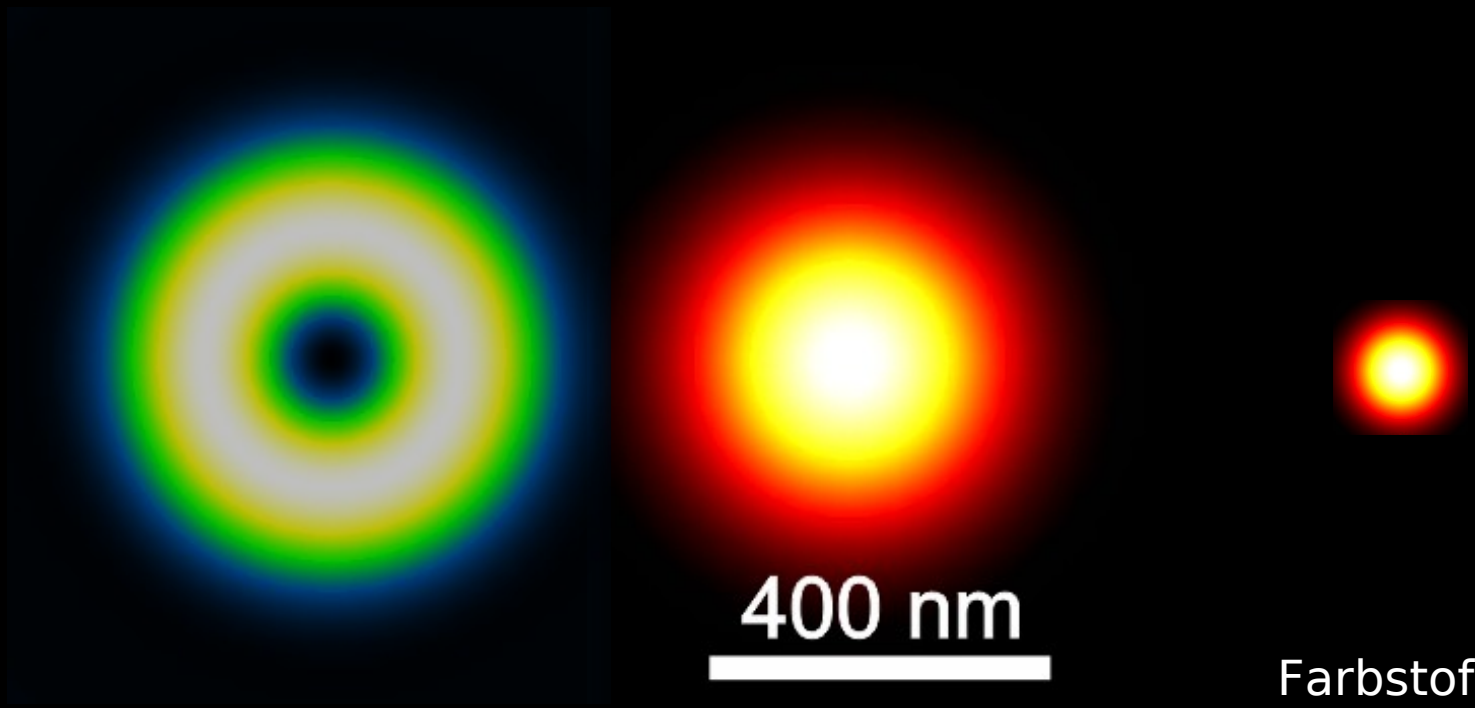


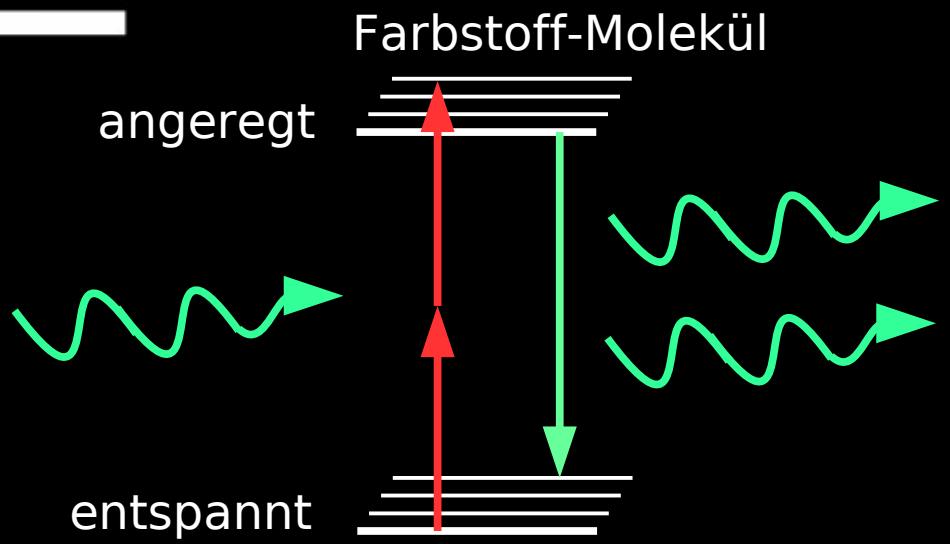
Video 1

Video 2

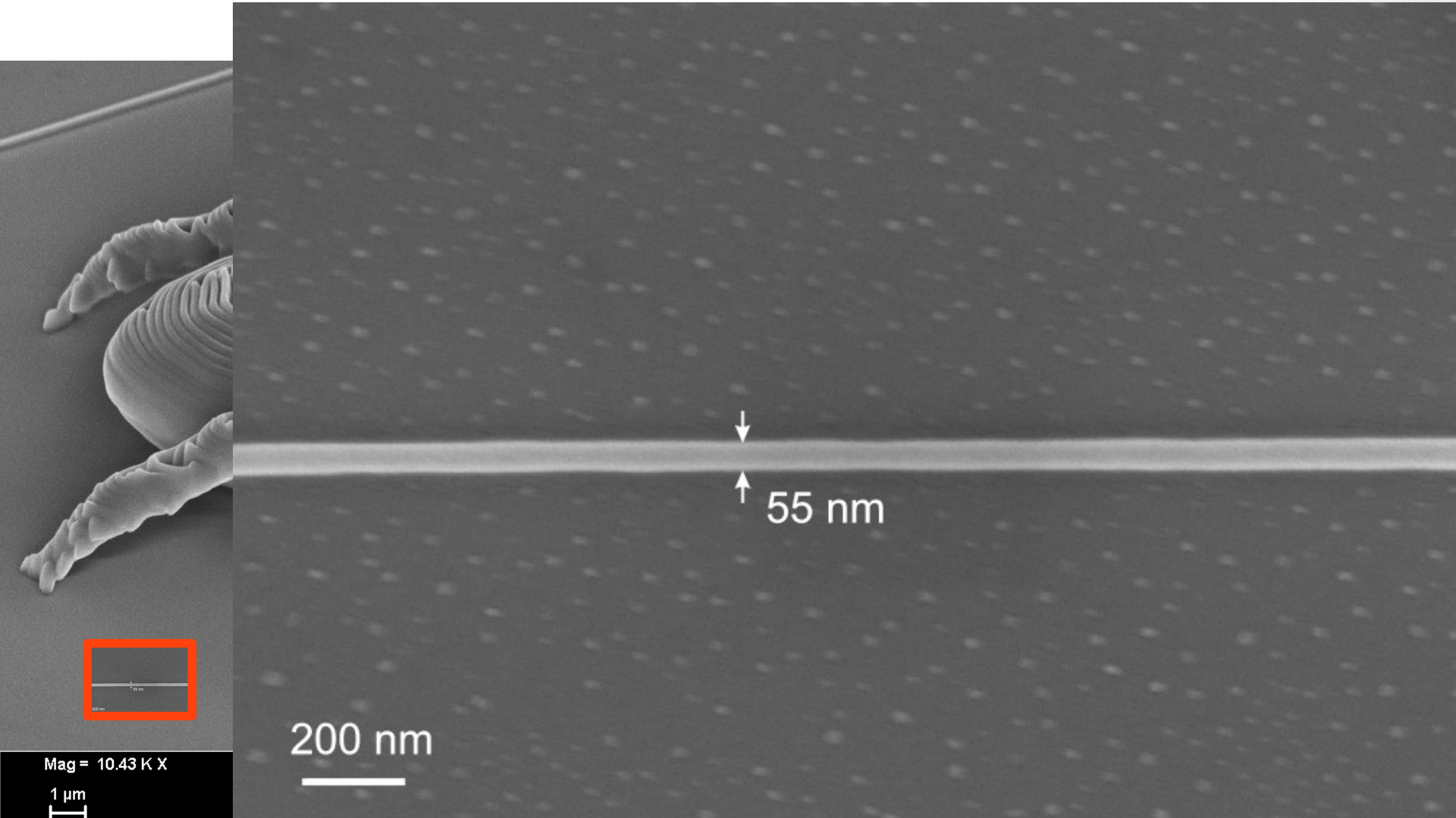

Mag = 10.43 K X
1 µm
EHT = 5.00 kV
WD = 14 mm
Signal A = InLens
Stage at T = 45.0 °
Tilt Corrn. = Off
Date :16 Apr 2014
Time :13:45:51
Mag =
2 µm
Mag =
1 µm

Stimulierte Emission



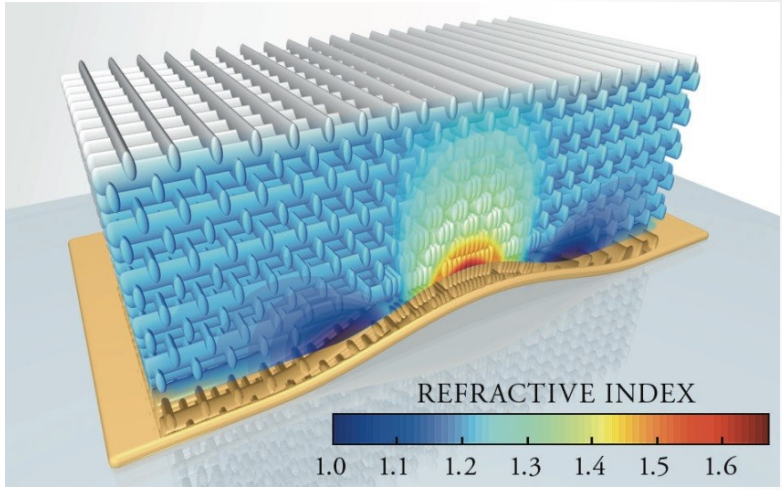


Kleiner als das Licht erlaubt?



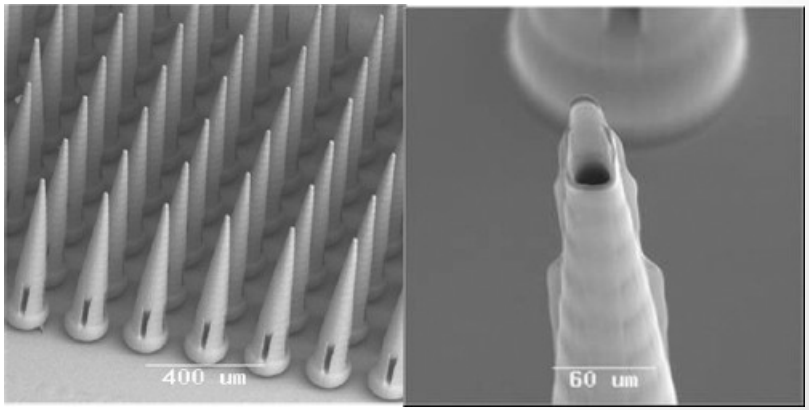
Ausblick

Tarnkappe



Medizin

- Mikronadeln
- Blutgefäße
- künstliche Organe?




OTE FOR ME! ;)
Mag = 2.84 K X
10 µm
EHT = 5.00 kV
WD = 15 mm
Signal A = InLens
Stage at T = 45.0 °
Tilt Corrn. = Off
Date :16 Apr 2014
Time :13:41:08