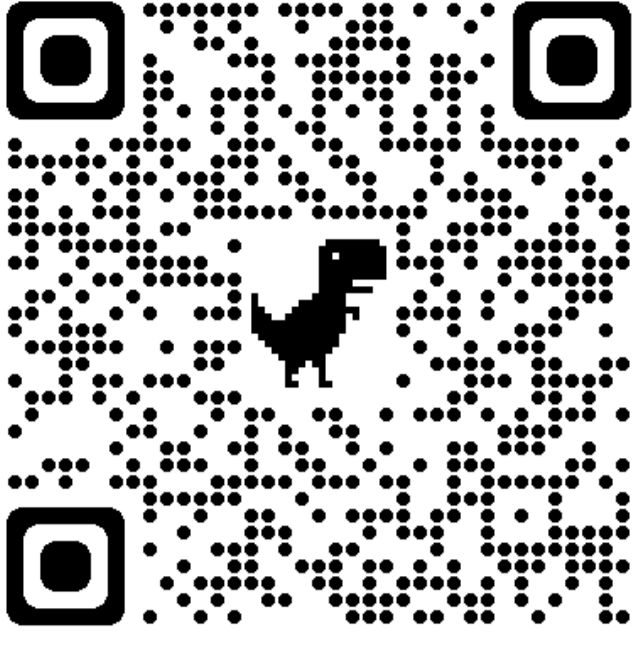




# Scanning Tunneling Microscopy (STM)

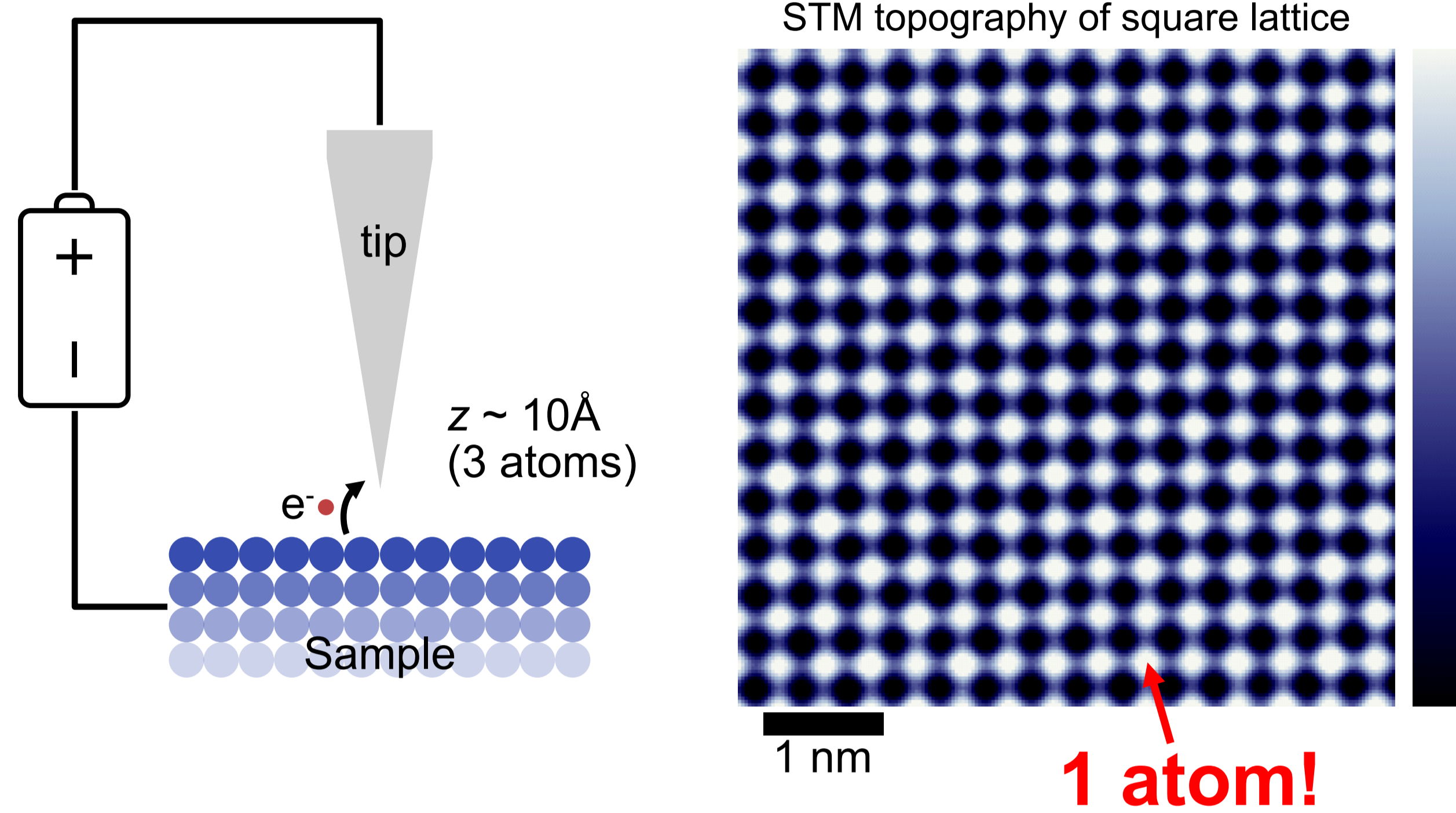


## Looking at atoms using quantum tunneling

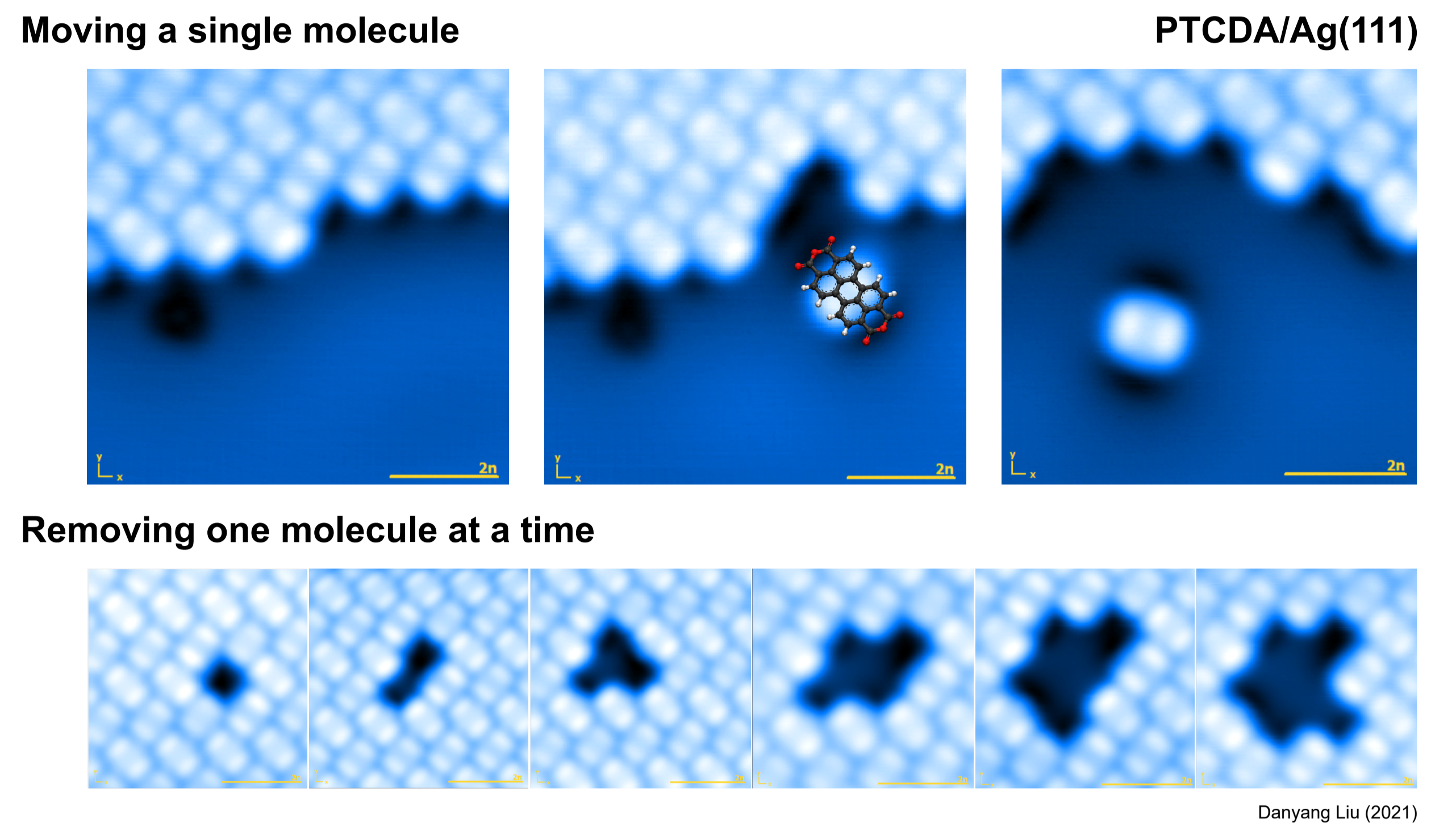
Aleš Cahlik, Carolina Marques, Danyang Liu, Berk Zengin, Cinja Müller and Fabian D. Natterer

Contact us: ales.cahlik@physik.uzh.ch, carolina.dealmeidamarques@physik.uzh.ch

### Scanning tunneling microscopy (STM)

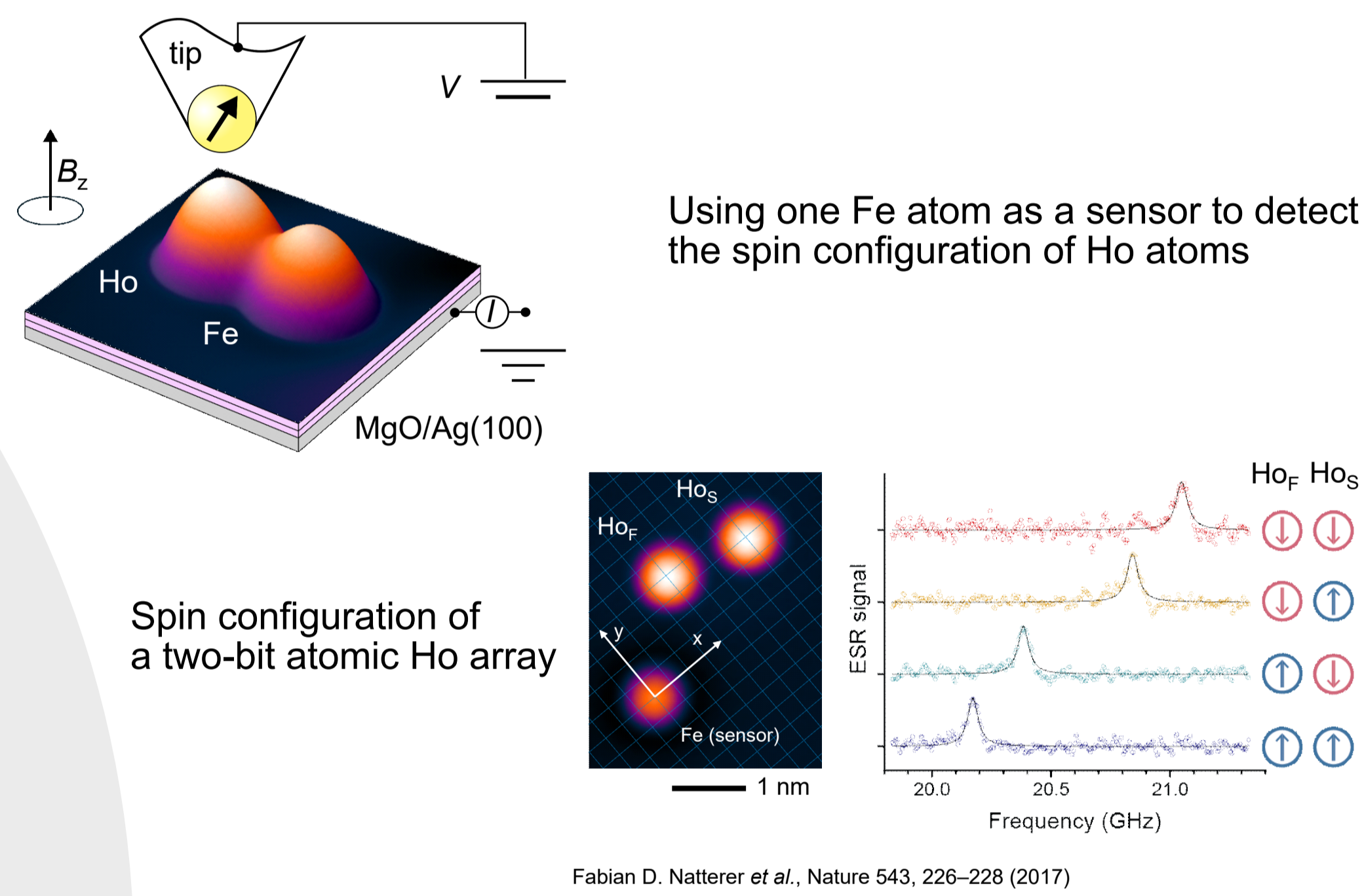


### Molecule manipulation



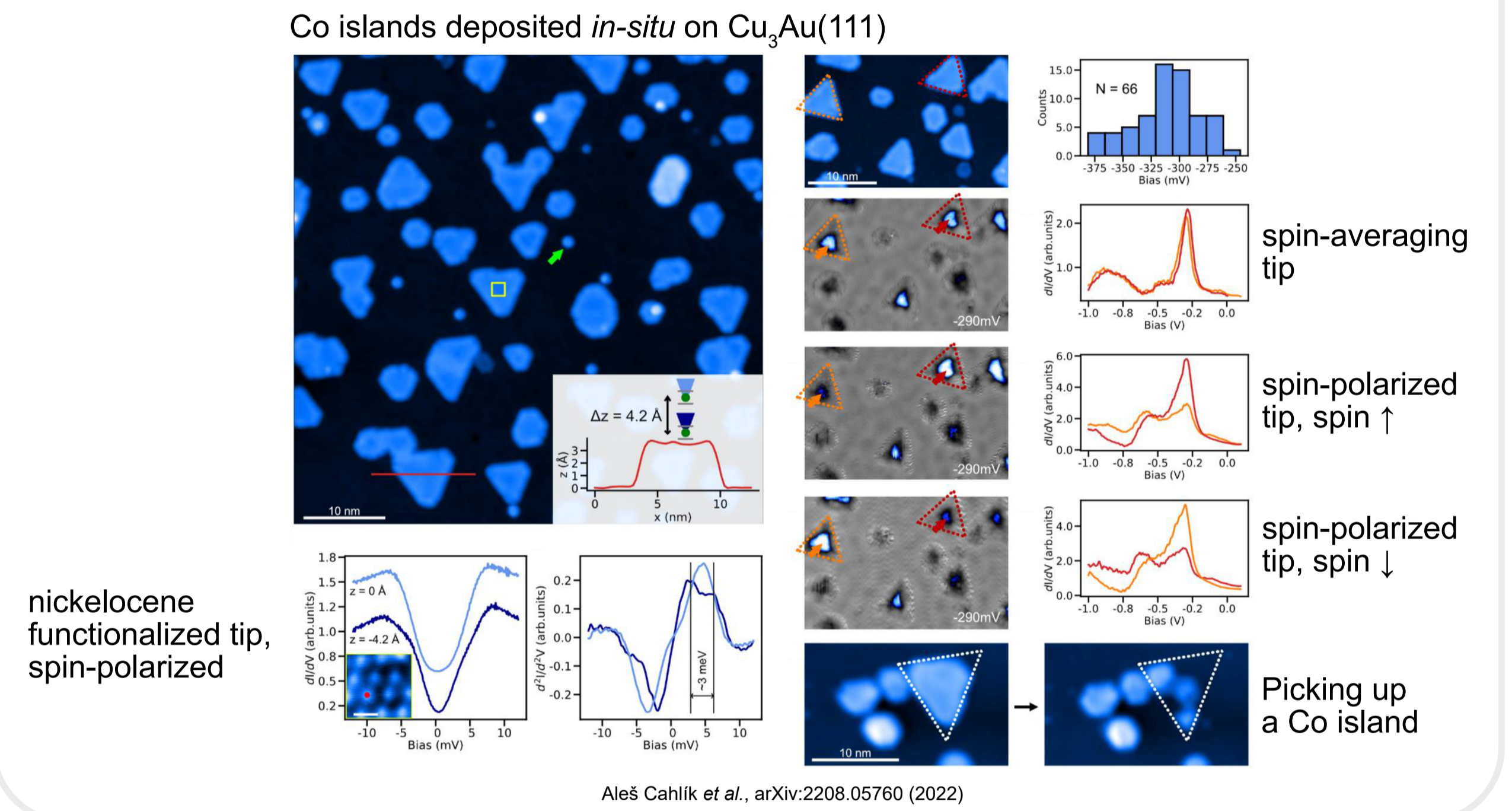
### Single-atom magnet

#### Single-atom electron spin resonance (ESR)



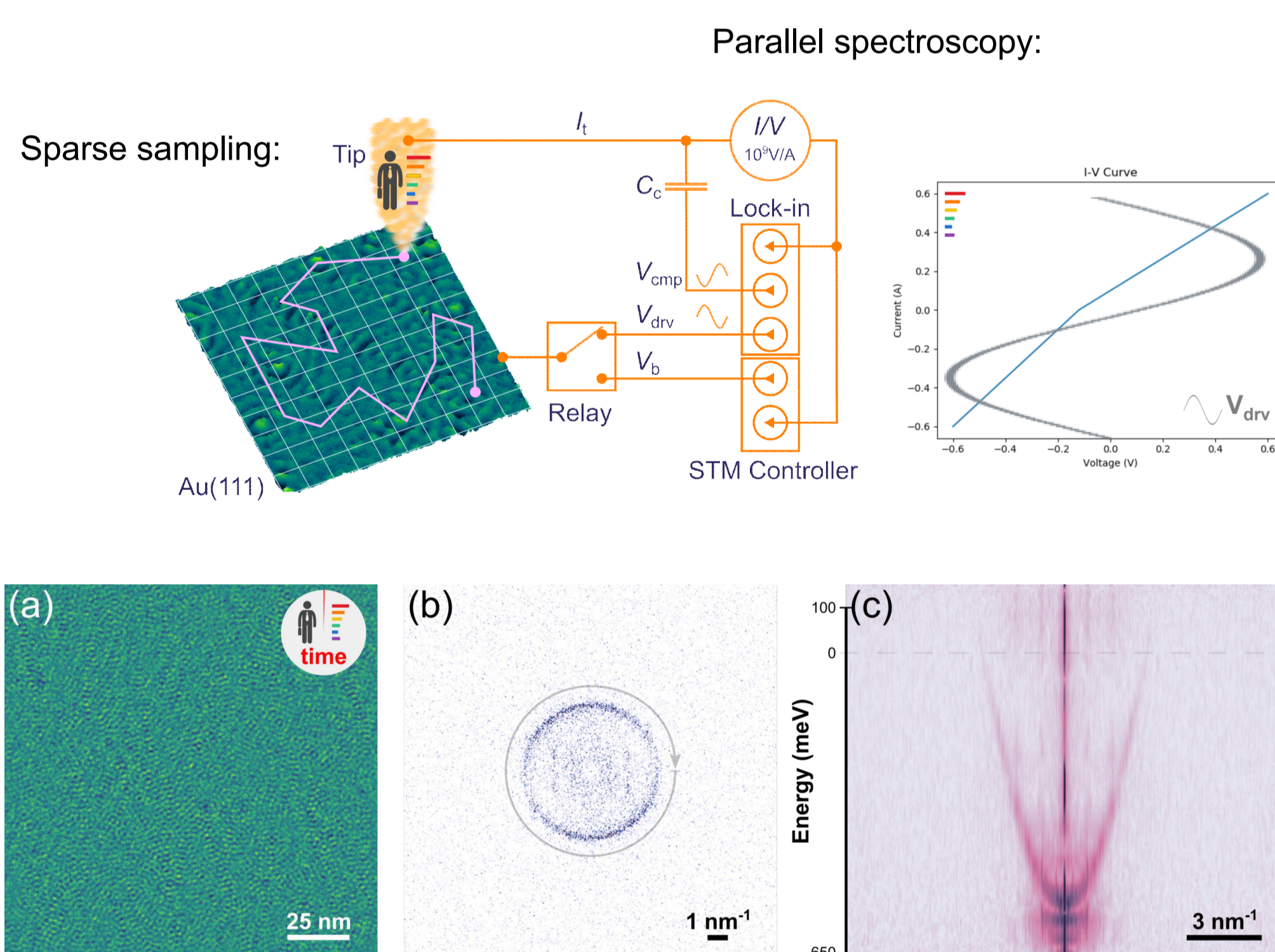
### Spin-polarized nanoislands

#### Spin-polarized STM



### Looking into the electronic states

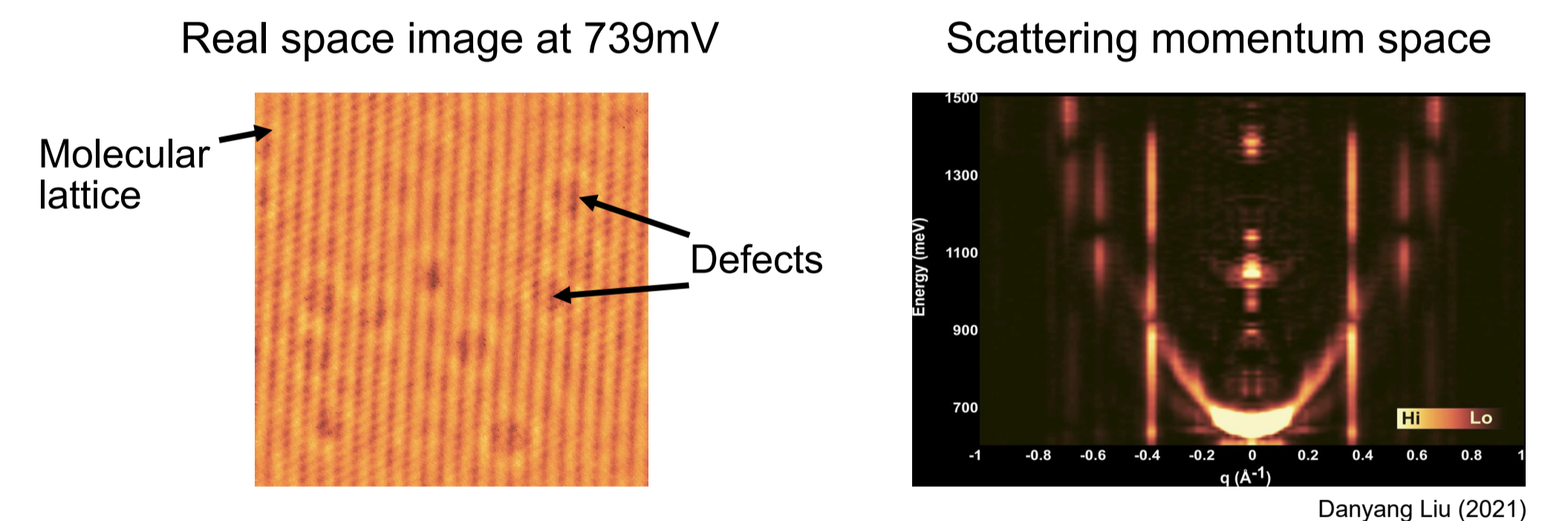
#### Fast Quasiparticle interference mapping



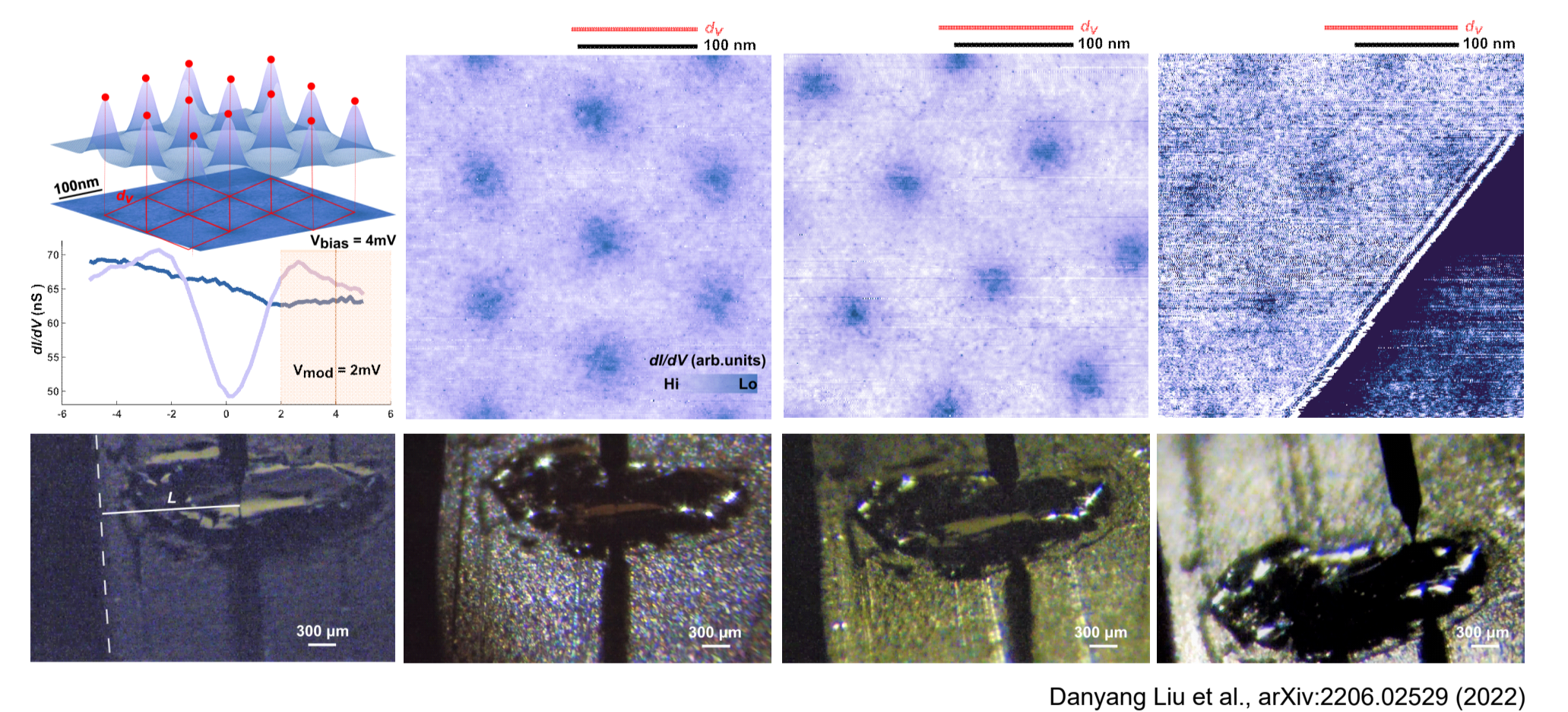
Sparse sampling combined with parallel spectroscopy

Measurement time: 40 minutes instead of 12 days

#### Quasiparticle interference of molecular thin film on Ag(111)

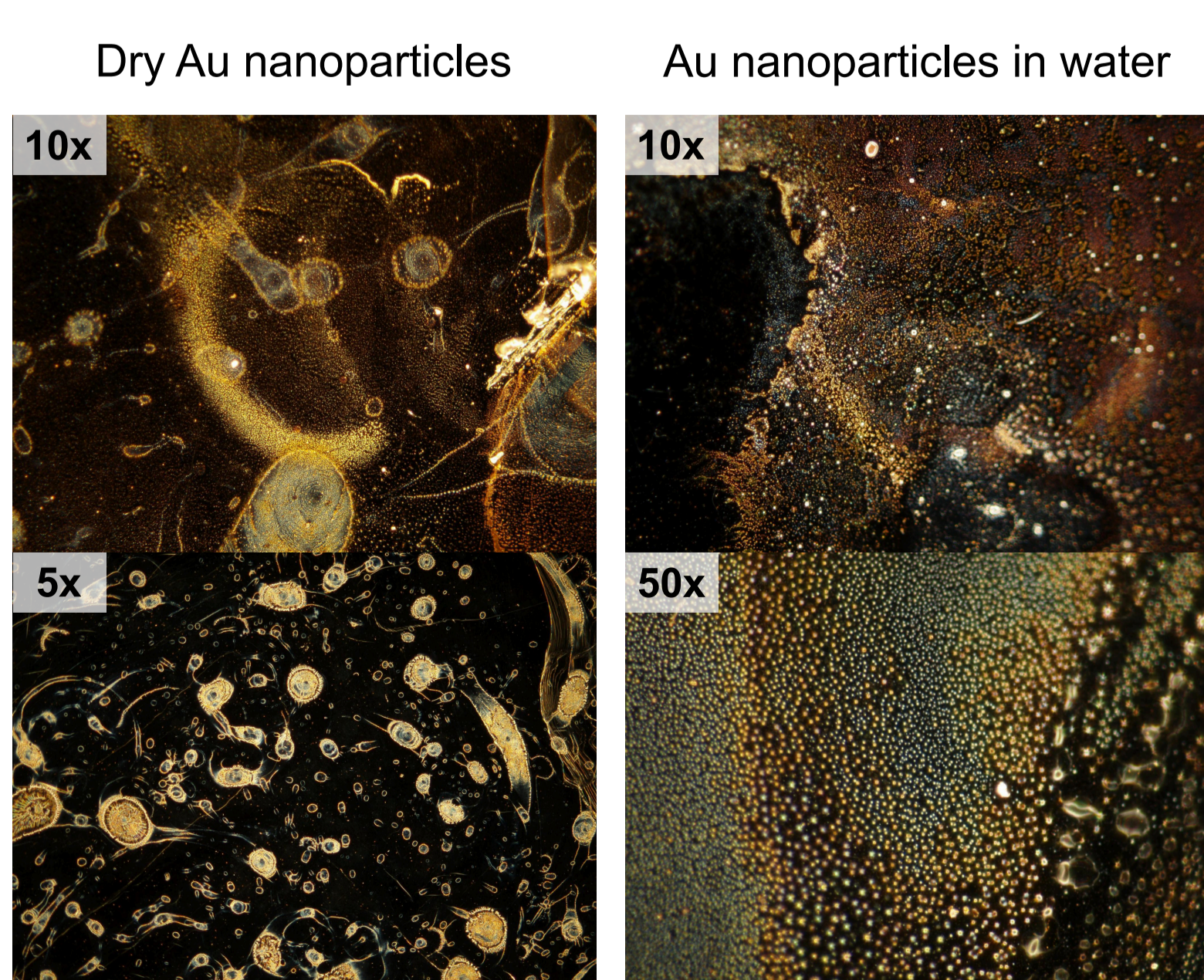


#### Superconductor lattice vortex imaging in NbSe2

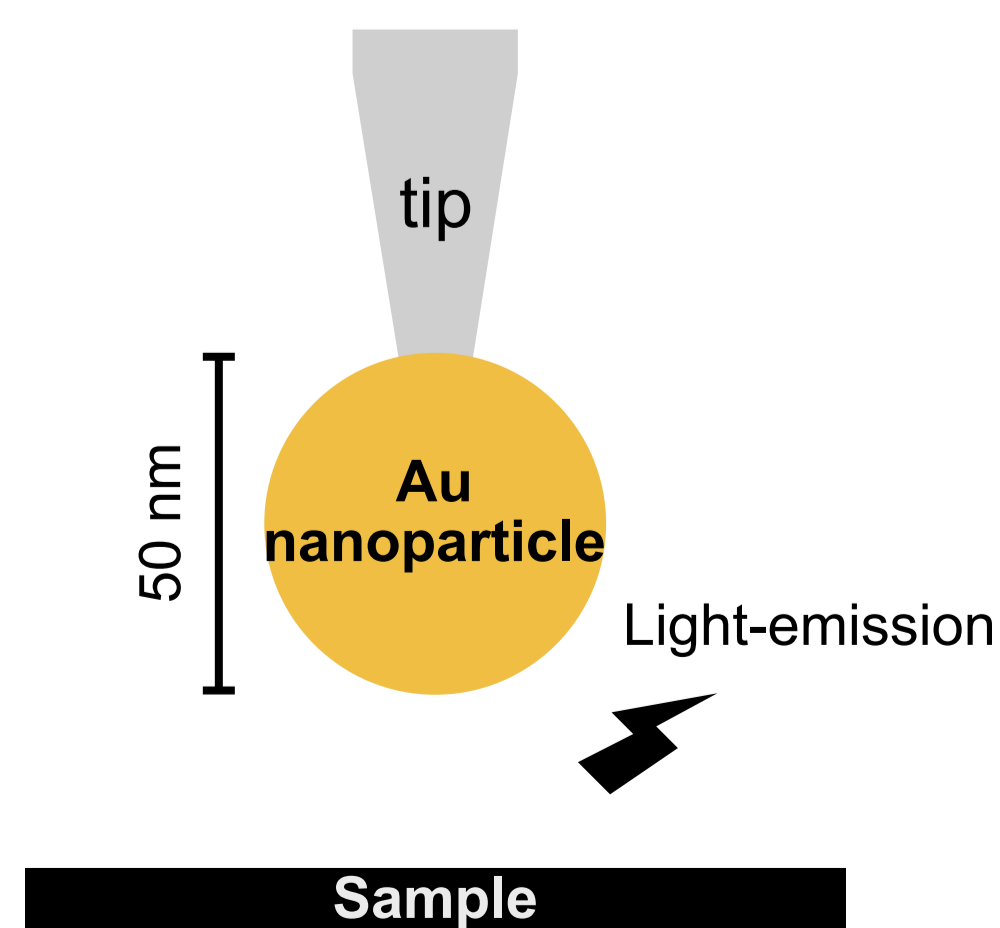


### Luminescence

#### Emitting light in the tunneling junction



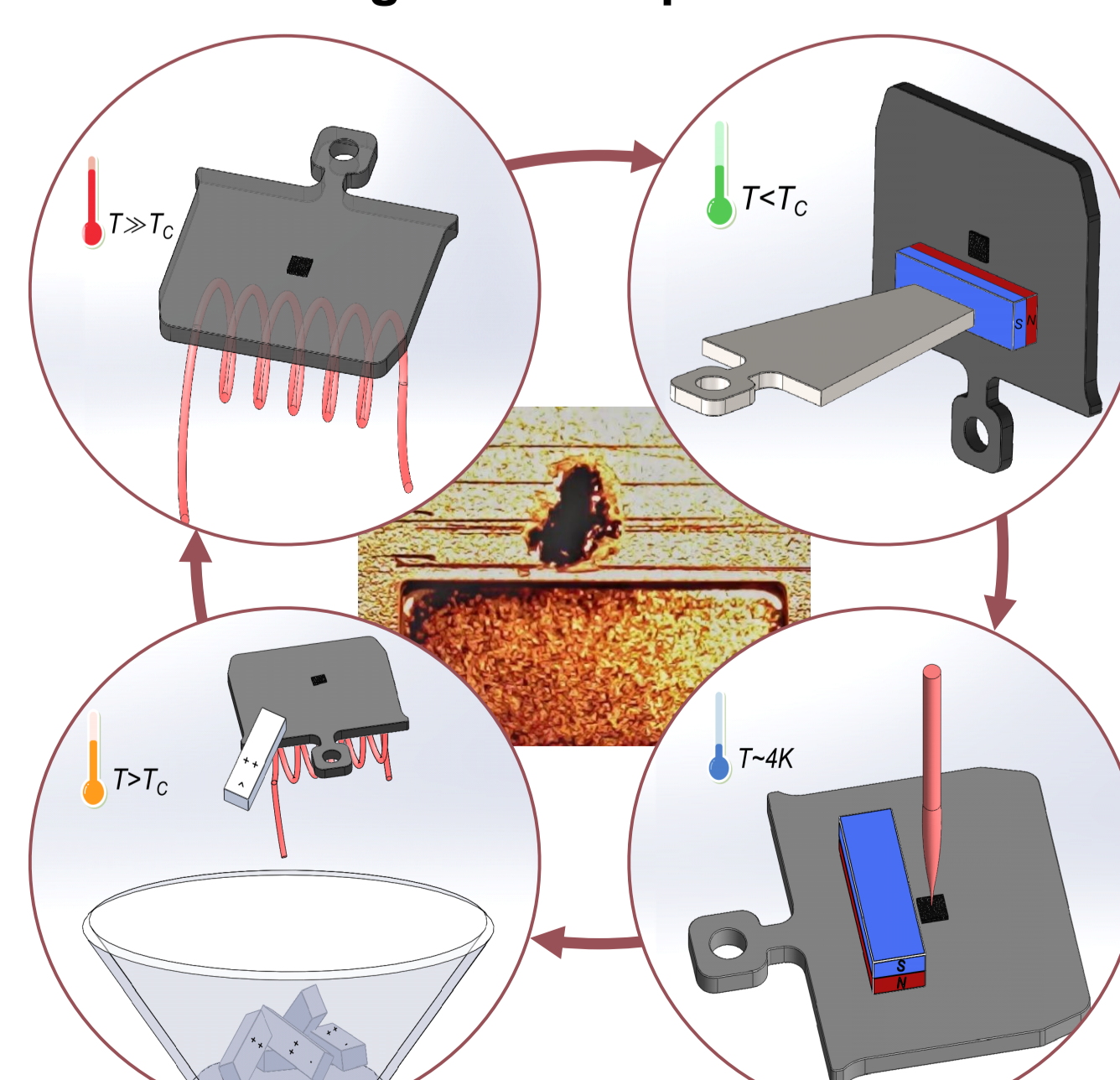
Taken with optical microscope



Cinja Müller (2022)

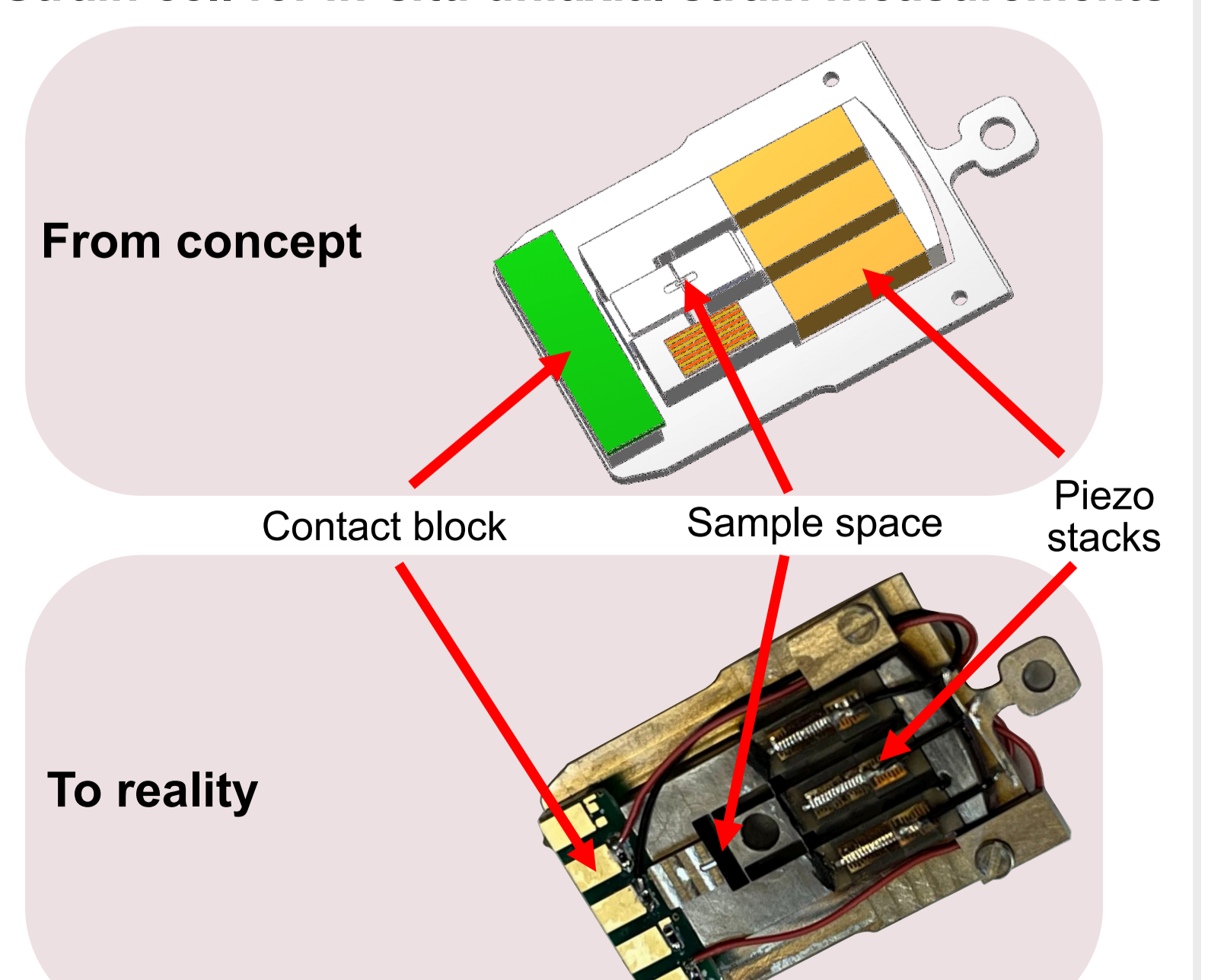
### Instrumentation development

#### Sacrificial Magnet Concept



Danyang Liu et al., arXiv:2206.02529 (2022)

#### Strain cell for in-situ uniaxial strain measurements



Alexander Steppke and Danyang Liu (2022)