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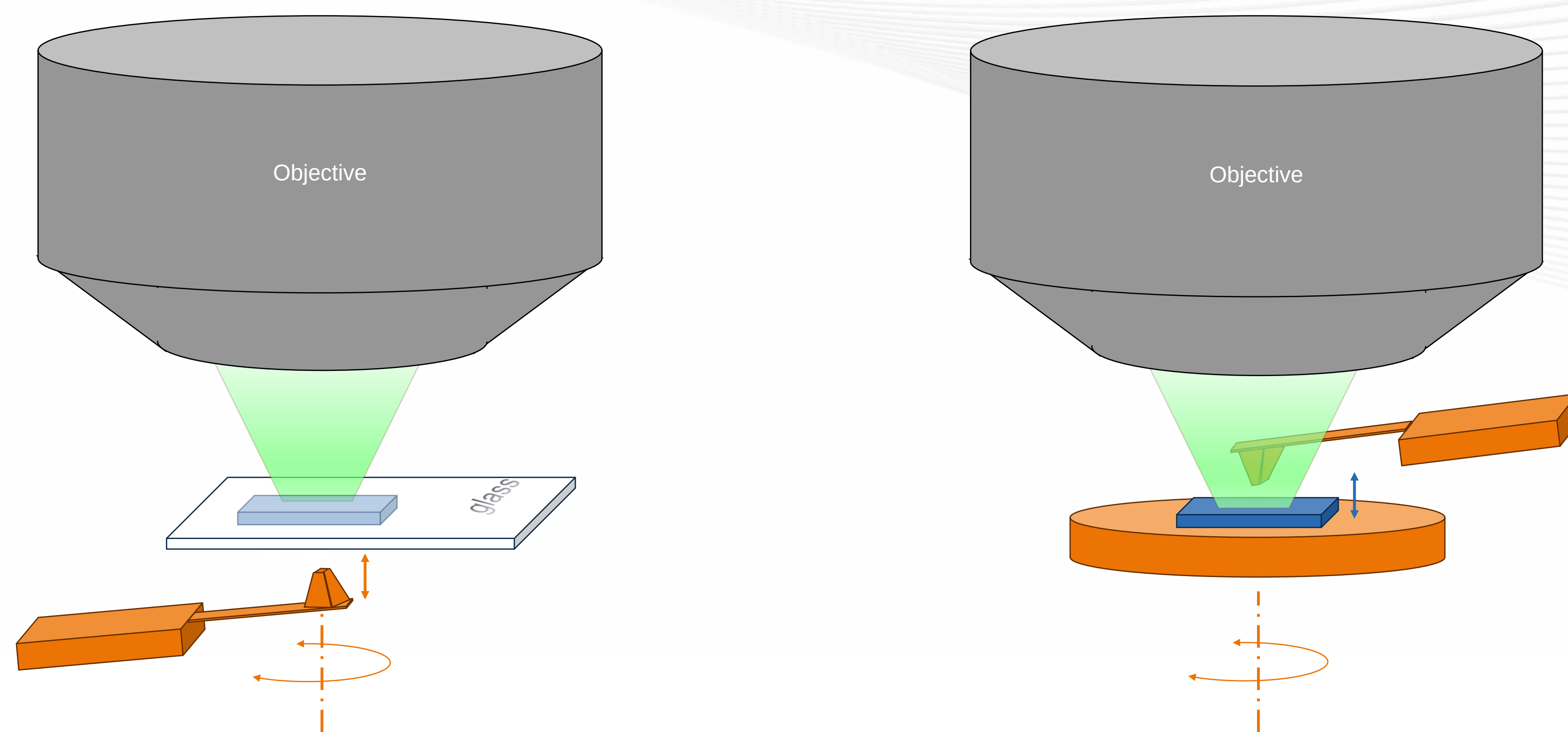
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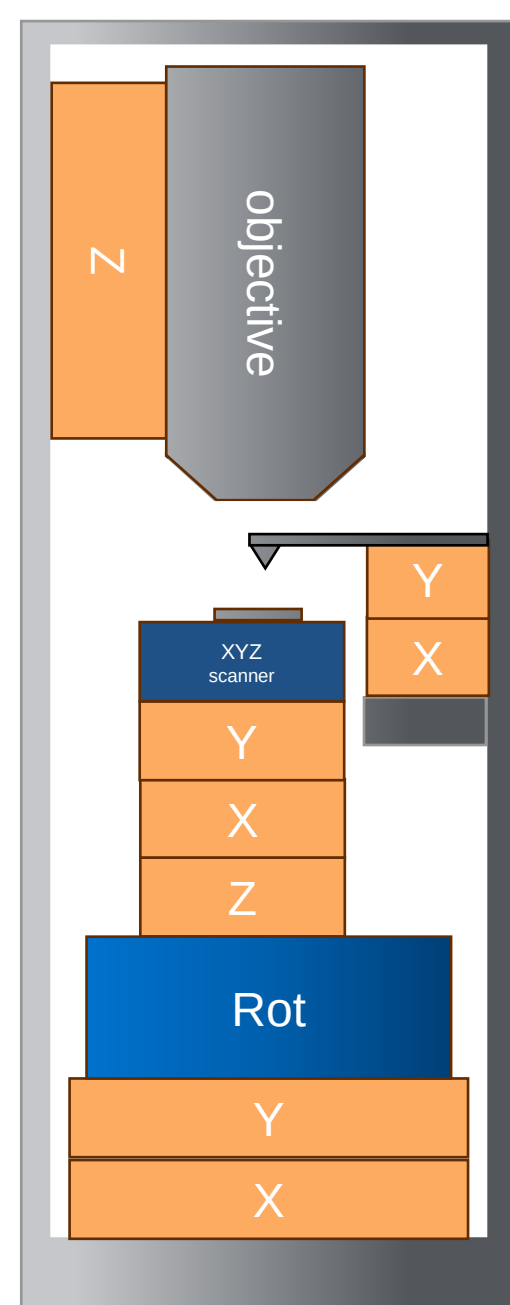
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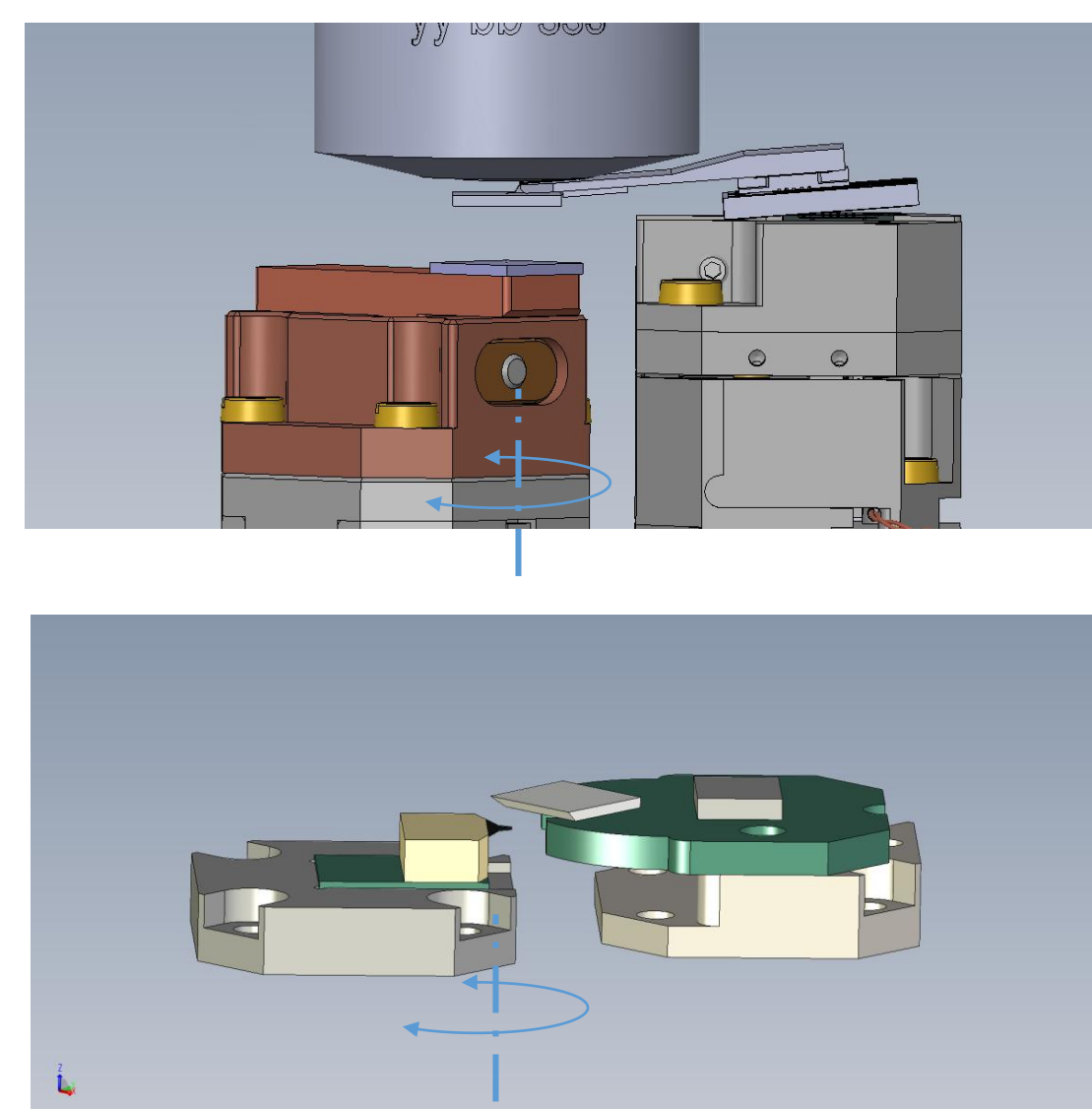
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Setup combines atomic force microscopy (AFM) and confocal microscopy (CFM) functionalities in a versatile manner with 2 configurations.

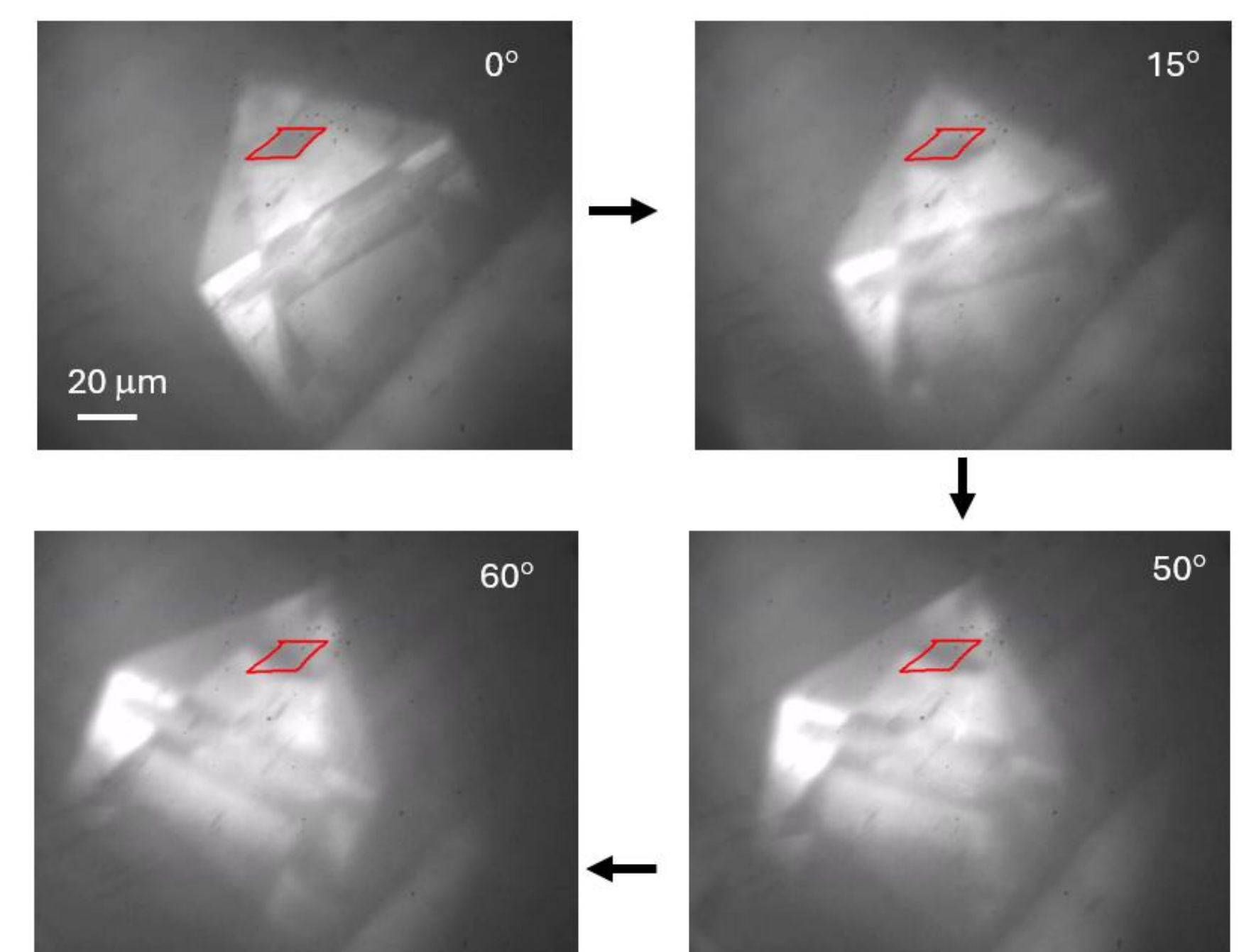
The experimental setup



Setup allows for (re-)positioning of the rotation axis at low temperatures.

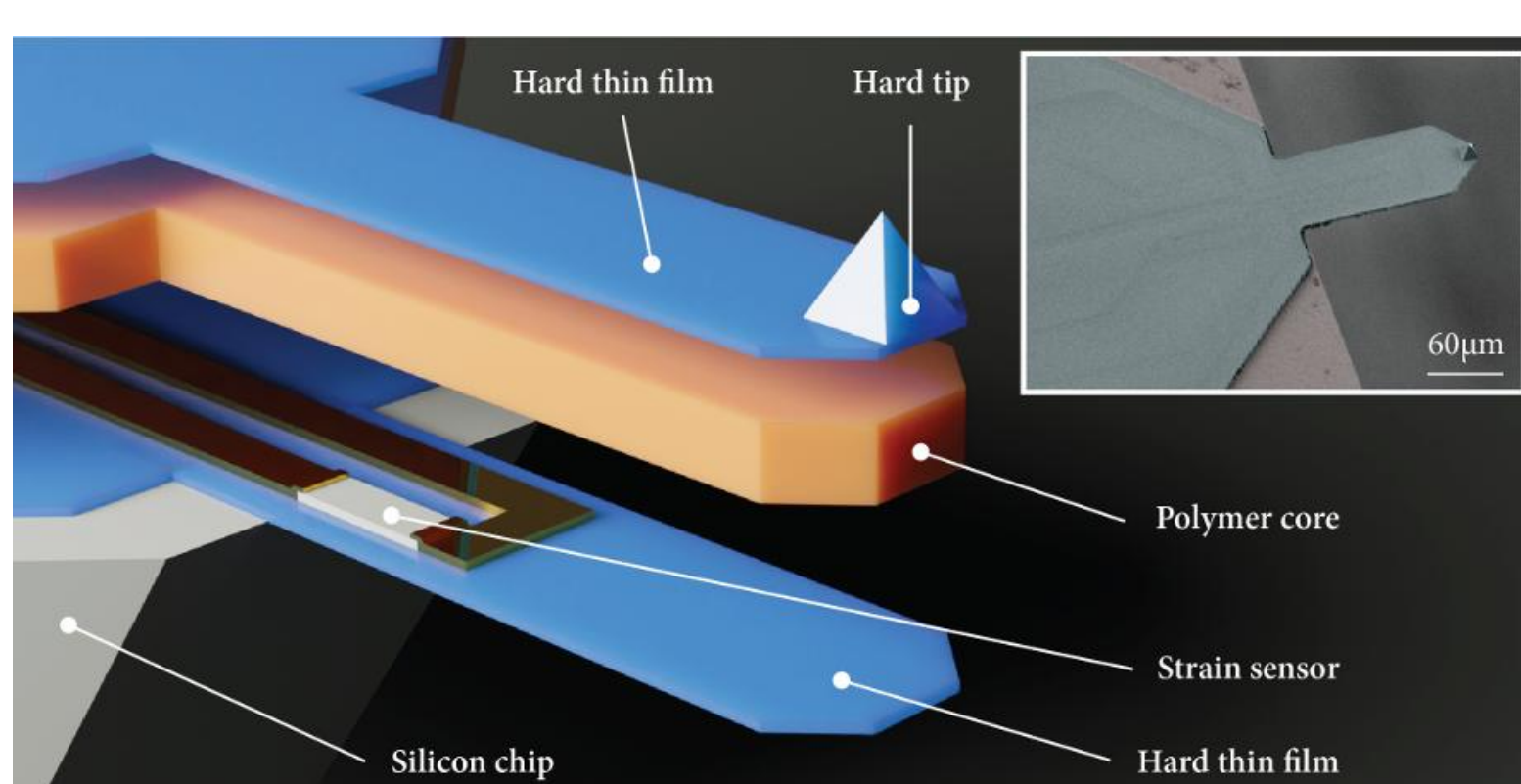


Rotation of sample or tip possible, the latter requires a transparent sample.



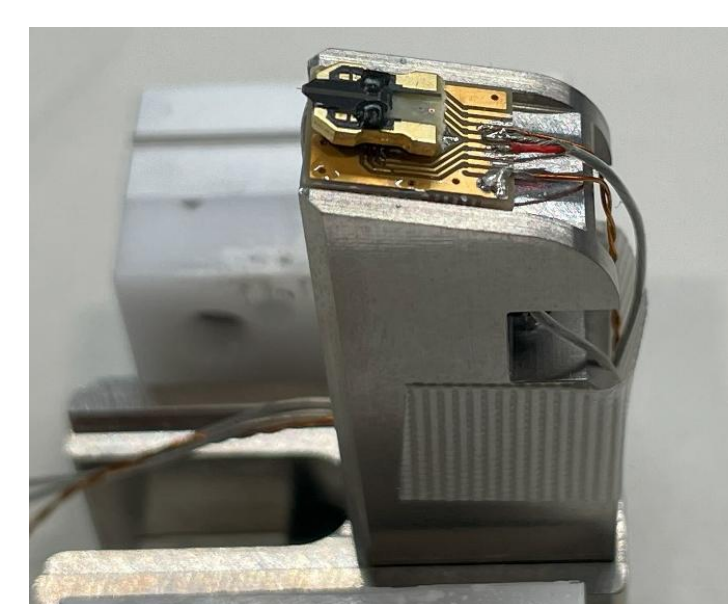
In-situ optical view of the tip during a rotation by 60°.

Self-sensing piezoresistive cantilevers

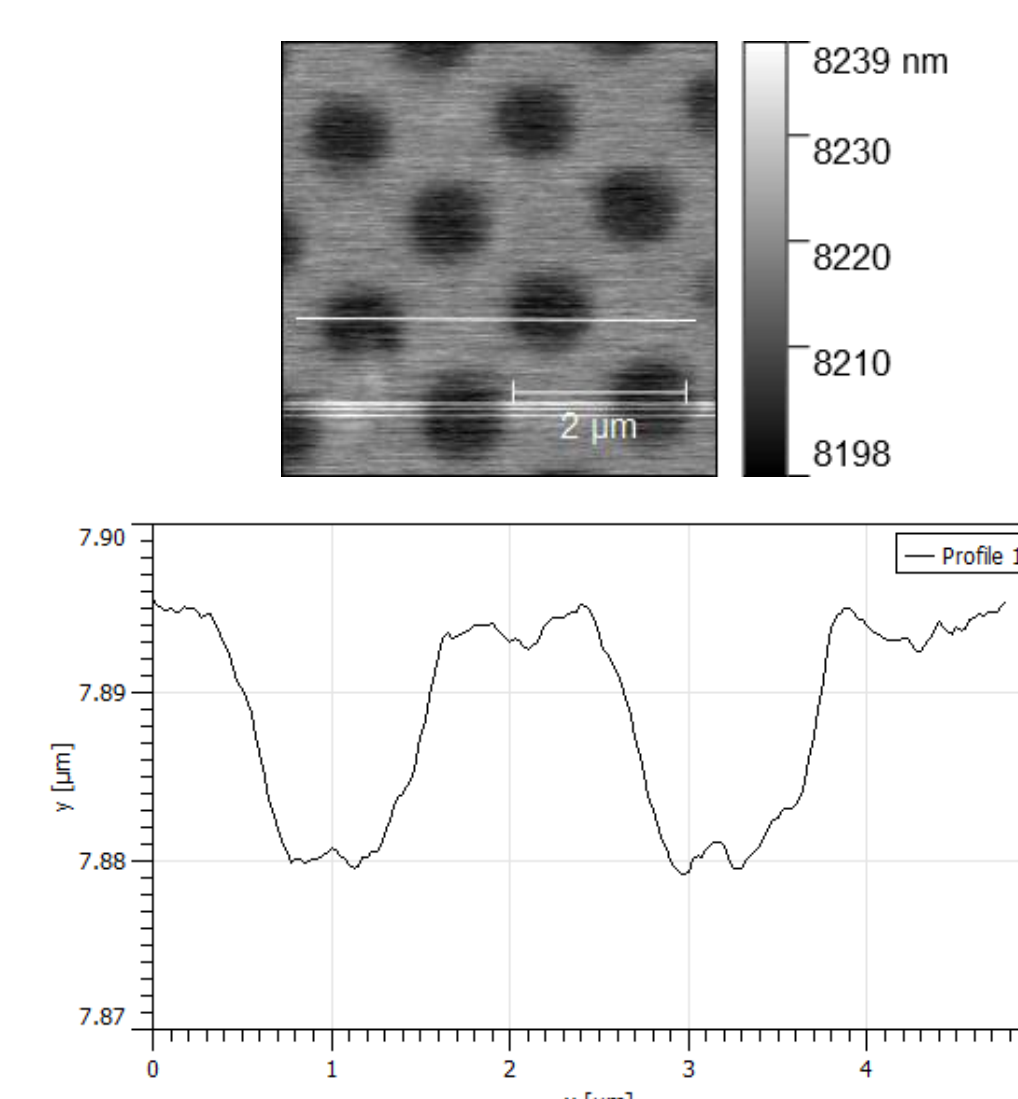


N. Hosseini et al., A polymer-semiconductor-ceramic cantilever for high-sensitivity fluid-compatible microelectromechanical systems, *Nature Electronics* 7, 567 (2024)

Trilayer cantilever design.



Standard sensor. AFM module with self-sensing cantilever.



Contact Mode

Noise scan: RMS noise value (feedback on, BW=200 Hz): ~750 pm

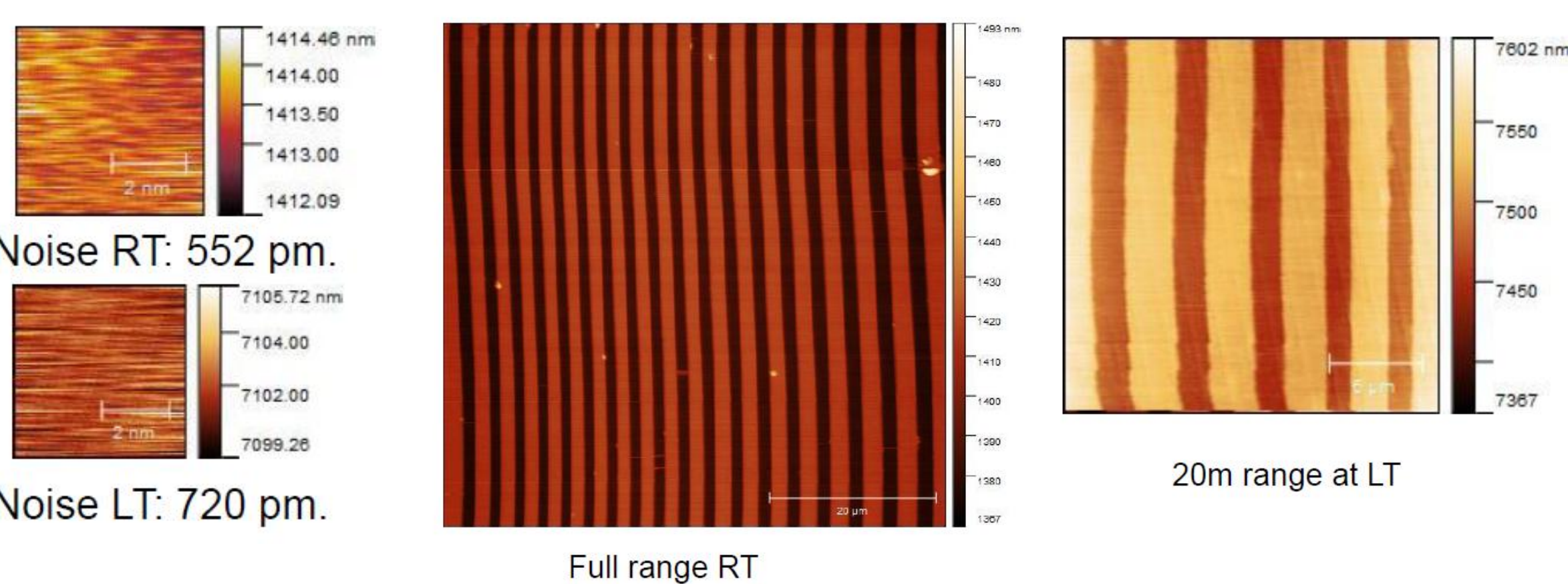


Novel 'inverted' cantilevers

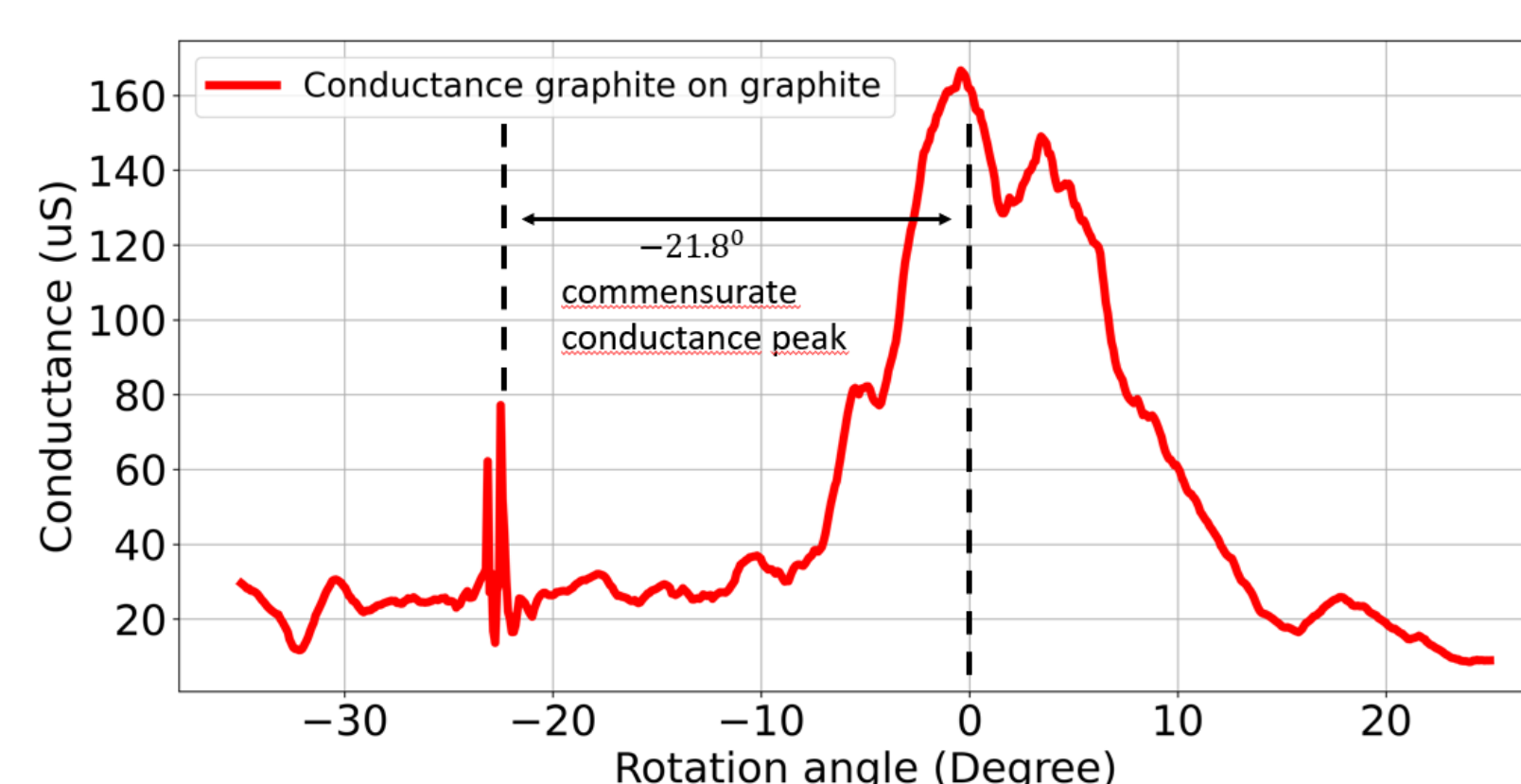
Preliminary QOTM measurements inside cryostat attoDRY2200

Inverted self-sensing cantilever

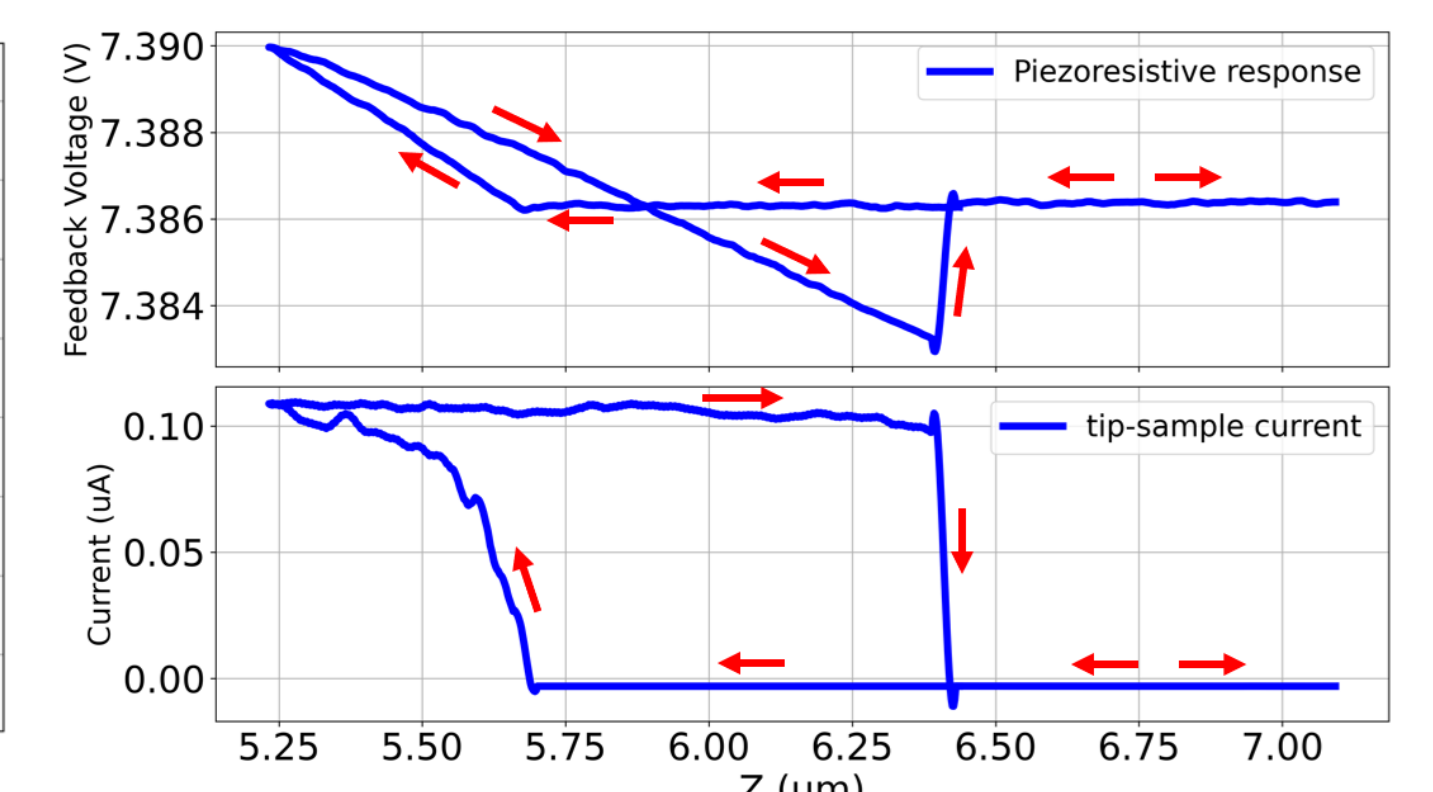
Scan performance -2- cantilever after thermal cycle -RT



Conductance vs Twist angle



Approach-retract curve



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