



# Atomic force microscopy in condensed matter research

Gabriel Schulmann

What  
research are  
we doing?

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We are using an atomic force microscope (AFM) to determine the physical properties of various organic samples.

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We take topographical images

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We also make electrical measurements with the AFM

Why not use  
an optical  
microscope?

Optical microscopes have a theoretical limit on their resolution that is based on the wavelength of light.

AFM is not bound to this limit

## How does an AFM work?

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We set a cantilever tip close enough to the sample

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We oscillate cantilever tip at a set frequency

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As the tip moves along the sample the frequency will deviate

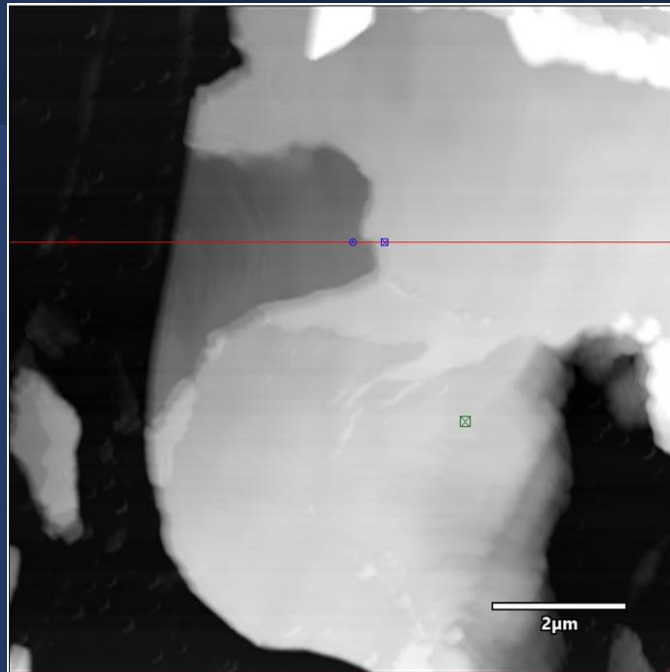
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The AFM will make height corrections to keep the frequency constant

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These height corrections are used to map the topography of the sample.

# What does an AFM image look like?



- With the AFM, we can learn about the size and shape of the sample
- We can also learn about the electrical properties of the sample
- Future applications are most apparent in solid state devices



Thanks For Listening!

