# ATOMIC FORCE MICROSCOPY



### 1.AFM

AFM was invented in 1986. AFM allows to obtain surface topography of the sample surface through detecting force between the tip of the cantilever and the sample surface.



## 2.STATIC/CONTACT MODE

- Also known as contact mode
- Tip is continuously in contact with sample surface
- Focus on Repulsive force
- Suitable for relatively flat and stiff surfaces





#### **3. DYNAMIC MODE**

- Also known as non-contact mode
- Cantilever oscillate at intermittent contact
- Reduce frictional and lateral forces between tip and surface
- Suitable for soft surfaces such as biological samples

## **4. REFERNCE ARTICLES**

 J. K. Avlyanov, J. Y. Josefowicz, and A. G. MacDiarmid, "Atomic force microscopy surface morphology studies of 'in situ' deposited polyaniline thin films," Synth. Met., vol. 73, no. 3, pp. 205–208, Aug. 1995, doi: 10.1016/0379-6779(95)80017-4.

[2] D. Johnson, N. Hilal, and W. R. Bowen, "Chapter 1 - Basic Principles of Atomic Force Microscopy," in Atomic Force Microscopy in Process Engineering, W. R. Bowen and N. Hilal, Eds., Oxford: Butterworth-Heinemann, 2009, pp. 1–30. doi: 10.1016/B978-1-85617-517-3.00001-8.

[3] S. Yu. Luchkin, "Methods and Instruments | Atomic Force Microscopy," in Encyclopedia of Electrochemical Power Sources (Second Edition), J. Garche, Ed., Oxford: Elsevier, 2025, pp. 148–163. doi: 10.1016/B978-0-323-96022-9.00211-5.



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