

Self-test

Fill out the table in the next slide.

Central column: for each scanning probe technique indicate what property is measured, registered and shown in the output.

Right column: specify the parameter that is maintained constant throughout the measurement.

Choose right answers from the list below (for each columns).

Note that:

-in some cases more than one item from the list may be acceptable

-some listed items may be acceptable for more than one technique (or not acceptable at all)

Variants of answers :

- (1) DC voltage
- (2) Cantilever deflection
- (3) Scanner height (z)
- (4) AC voltage
- (5) Current
- (6) Indentation depth
- (7) Amplitude of cantilever oscillation
- (8) Reflectivity of cantilever
- (9) Tip-surface capacitance
- (10) Distance between probe tip and sample
- (11) amplitude of oscillation of the cantilever

	Property that is measured and registered for the output	Parameter that is kept constant throughout the measurement
Contact atomic force microscopy (AFM) (constant force mode)		
Tapping (intermittent) mode atomic force microscopy		
Kelvin probe microscopy (KPM)		
Magnetic force microscopy (MFM)		
Conductive atomic force microscopy		
PFM		

	Property that is measured and registered for the output	Parameter that is kept constant throughout the measurement
Contact atomic force microscopy (AFM) (constant force mode)	Scanner height (z) (topography)	Cantilever deflection (force)
Tapping (intermittent) mode atomic force microscopy	Scanner height (z)	amplitude of oscillation of the cantilever
Kelvin probe microscopy (KPM)	DC voltage that nullifies AC signal	AC response at driving frequency ω (kept close to zero) Distance between tip and sample
Magnetic force microscopy (MFM)	amplitude (or phase) of oscillations	Distance between the probe tip and sample
Conductive atomic force microscopy	Current Scanner height (z)	Cantilever deflection
PFM	AC – amplitude and phase of mechanical oscillations of the cantilever	Cantilever deflection (force), AC signal