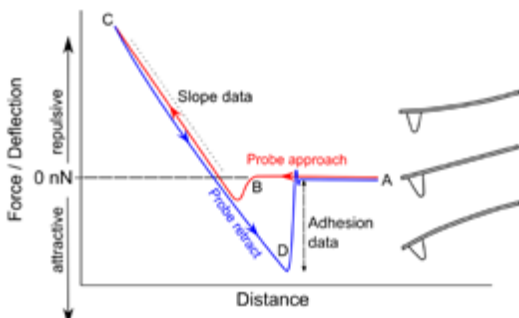


Force Distance Curves measure the deflection of a cantilever as it interacts with a surface. Force-Distance measurements monitor such surface parameters as: Adhesion, Stiffness, Compliance, Hardness, and Contaminate Thickness. This advanced AFM module is flexible and enables many types of experiments.



In ADV-FD mode, the probe at the end of a cantilever is moved toward a surface and then away from the surface. As the probe interacts with the surface, the cantilever bends. A deflection distance curve can be displayed by monitoring the T-B signal of the photodetector.

AFMWorkshop Advanced Force Distance package includes:

Force-Distance software module

- » **Acquiring curves in both Feedback and Non-Feedback modes**
Curves can be obtained in either Feedback or Non-Feedback Mode eliminating the need to scan an image if the area of interest can be seen in the powerful optical scope.
- » **Measuring force distance curves at multiple locations on an image**
Multiple force distance curves may be measured at manually selected locations, or automatically selected grid options of an AFM image.
- » **Triggering with both distance and T-B signals in Feedback mode**
Either a T-B signal value or absolute distance value may be used in Feedback Mode to reverse the direction of the piezoelectric ceramic while the probe is in the repulsive region of the forcedistance curve.
- » **Control the rate**
Controlling the rate through step size allows for multiple types of experiments, and can save time when multiple F-D curves need to be acquired.
- » **Setting a hold time of the probe on a surface**
Once the probe is resting on the surface, the movement of the probe can be monitored for a specific dwell time.
- » **Compatible with SPIP**
Now curves acquired with AFMWorkshop's Advanced Force Distance module are compatible with SPIP (sold separately) for easy in-depth analysis and data extraction.

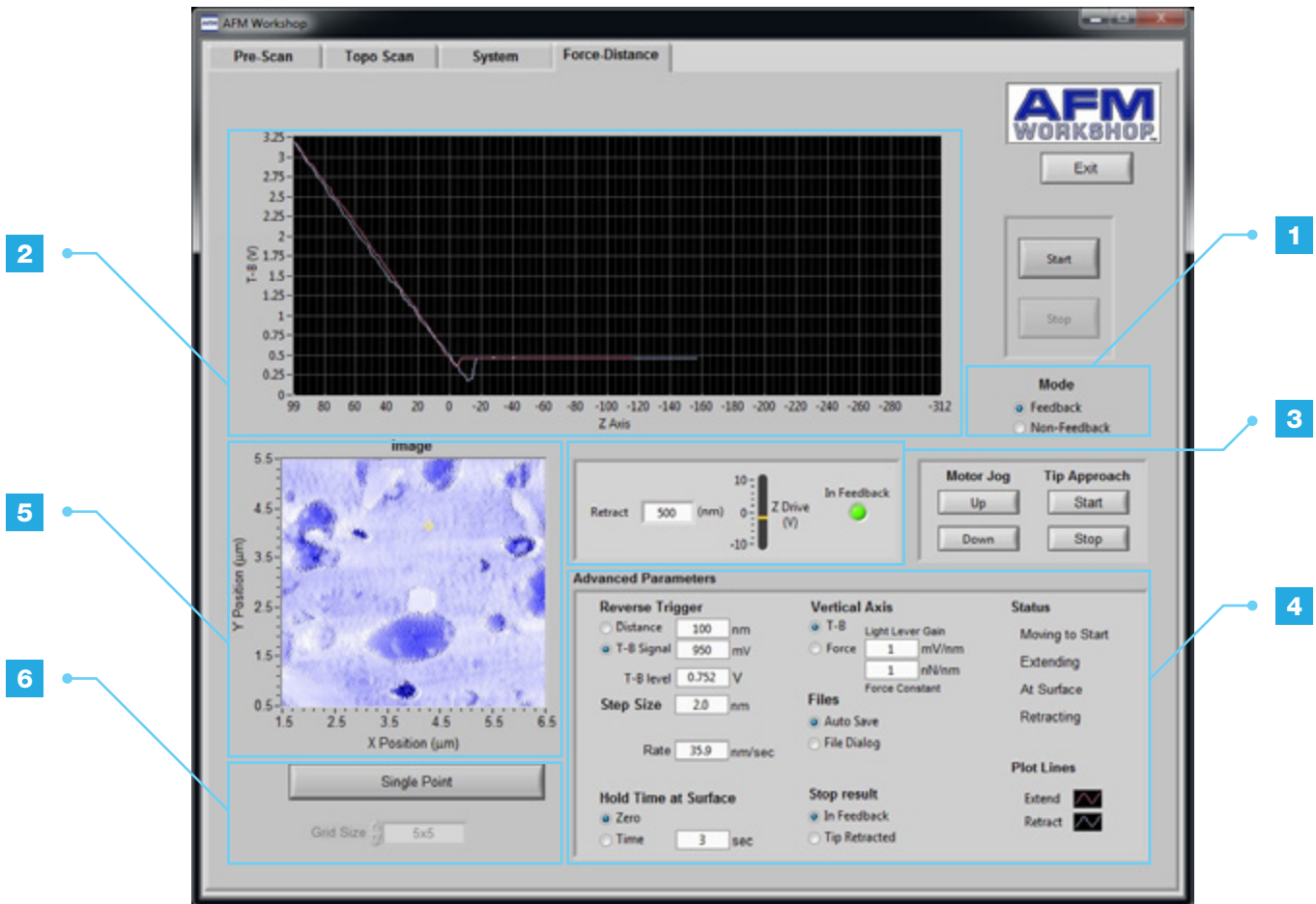
Spring Constant Calibration applet

- » **Utilizes the Sader method**
Combining a high speed frequency sweep and all variables needed for the Sader method this applet helps quickly and easily calculate the spring constant (k).

F-D Analysis applet

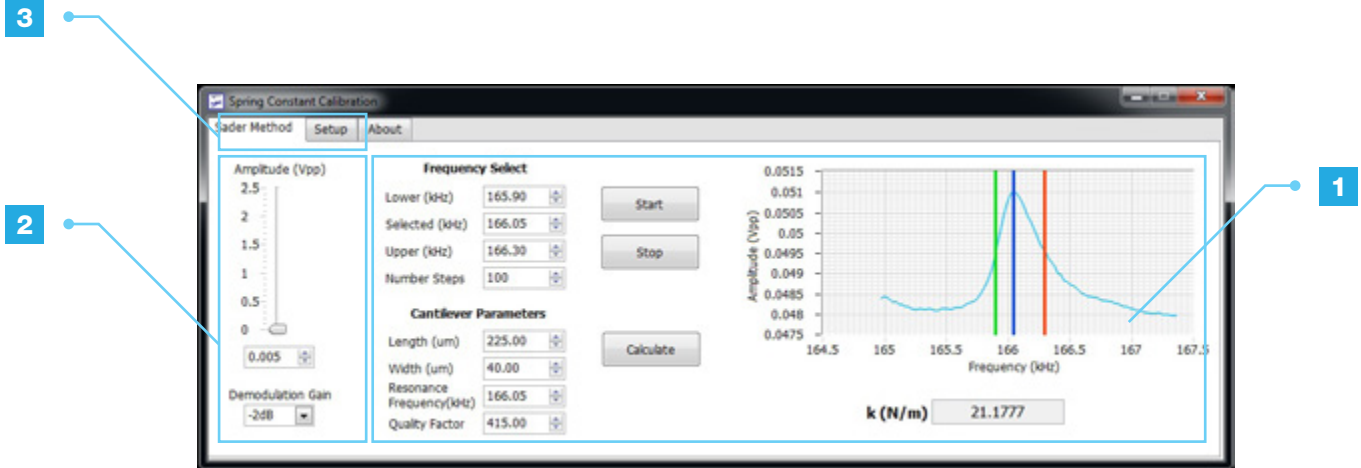
- » **Effortlessly level the curve and obtain the Gain of the Light Lever**
This easy to use applet allows a curve to be loaded, leveled, and obtain the LL Gain all at the touch of a button.
- » **End up with a Force-Displacement curve**
Many applications utilize a Force-Displacement curve and this applet ultimately assists in turning the Force-Distance curve into that format.
- » **Manipulate inbound and outbound curves separately**
Options include utilizing the entire curve or simply just the inbound or just the outbound making it easier to extract specific data related to your application

Advanced Force-Distance tab SCREENSHOT



1. Mode options include Feedback and Non-Feedback
2. Curve Data display region
3. Display indicates the Z piezoelectric ceramic position
4. Advanced Parameters allow control over multiple variables
5. AFM Image for easy selection of the location for force-distance measurements
6. Single Point or Mapping features 2x2, 3x3, 4x4, and 5x5 options

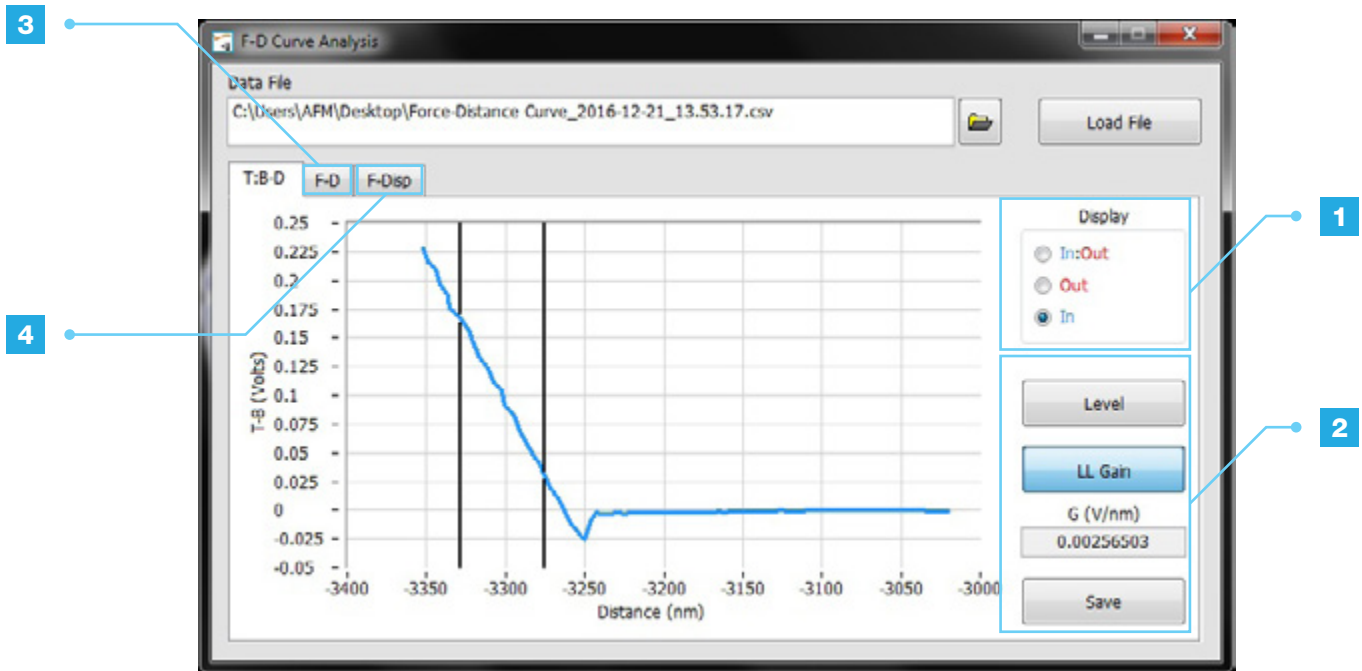
Spring Constant Calibration applet SCREENSHOT



1. Frequency select and display for easy Q calculation
2. Control over amplitude for the most accurate calculations
3. Setup for control of additional parameters

F-D Curve Analysis applet

SCREENSHOT



1. Display options include In:Out, Out, or In
2. Allows for Leveling and to obtain the Gain of the Light Lever
3. F-D tab transforms the curve from T:B-Distance to Force-Distance utilizing k (N/m) and G (V/nm)
4. F-Disp tab modifies the curve from Force-Distance to Force-Displacement and allows calculation of a Contact point