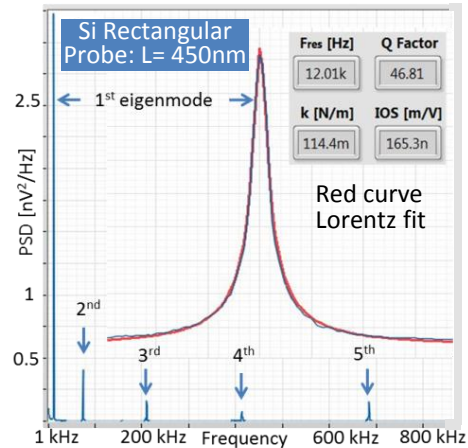


Power Your Nanoscope Microscope with Dynamic Cantilever Calibrator!

The Dynamic Cantilever Calibrator (DCC) is an accessory to the Digital Instruments/Veeco Instruments/Bruker MultiMode and Dimension scanning probe microscopes operating with Nanoscope III-V controllers. DCC adds Thermal Tune operation based on a precise detection of thermally-induced probe oscillations and thorough theoretical analysis.

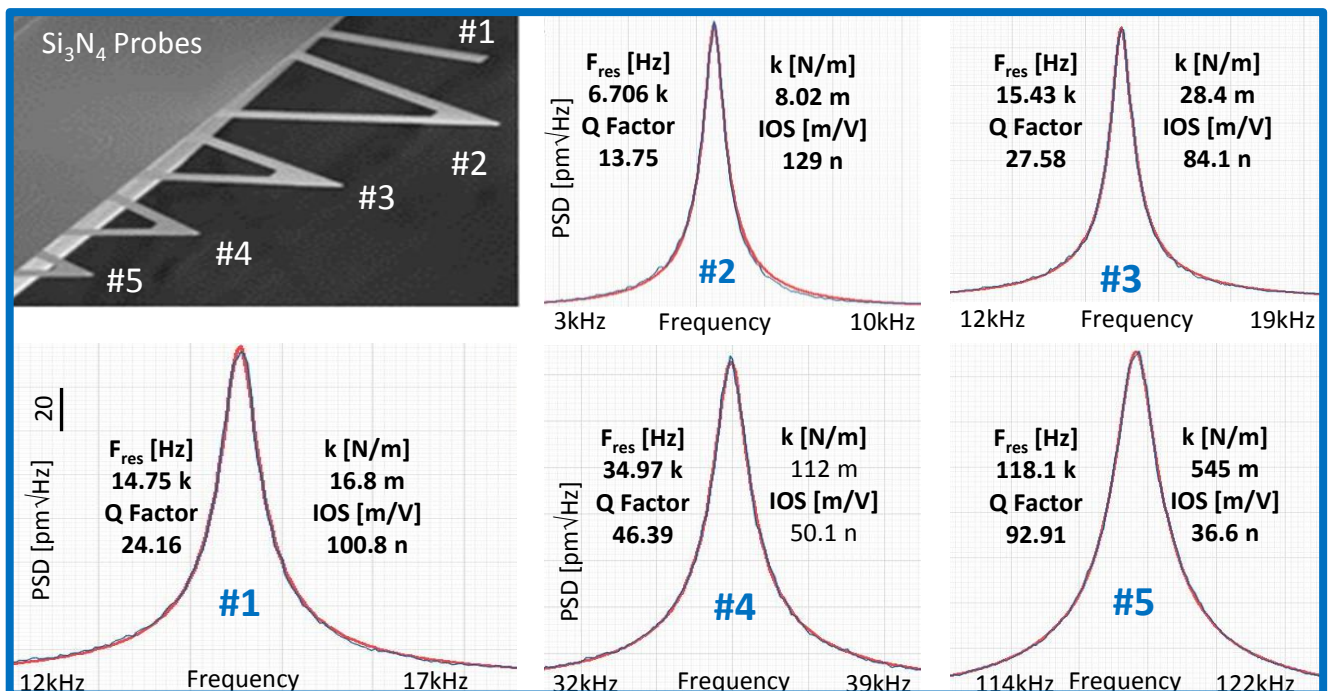


J. Alexander, S. Belikov, S. Magonov and M. Smith
MRS Advances 1-7 (2018). doi: 10.1557/adv.2018.77



The accessory is supported by a software package and operates in-line with the microscope not disturbing its functions. The DCC helps an AFM practitioner with

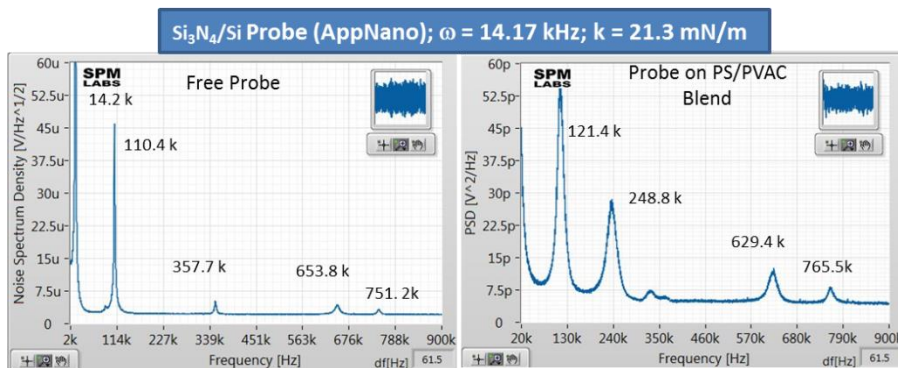
- Finding flexural and torsional resonances of AFM probes with frequencies up to 8 MHz
- Enabling calculations of spring constants for rectangular and V-shaped probes
- Providing estimates of Inverse Optical Sensitivity (IOS) for microscope set-up
- Measuring optical beam deflection (OBD) noise of the microscope head
- Detecting weak oscillatory signals in the contact resonance and other AFM modes



Measuring Contact Resonances? It is quite easy with DCC!

"I am impressed by the clearness of the spectra!"
Prof. Dr. Walter Arnold (Germany)

Sensitive broad-band detection of the probe deflection with the DCC accessory offers unique studies of contact resonances without any actuators usually applied to excite the probe and/or sample. When the AFM probe comes in contact with a sample its resonances are shifted to higher frequencies as seen from a comparison of PSD graphs below. These spectra are collected during imaging of the sample in the contact mode.



In contact mode imaging of immiscible polymer blends, the PSD graphs collected on dissimilar domains show contact resonances specific to the components (www.spmlabs.com/news). The heterogeneities can also be detected in sample depth. With tip-force increase from 3 nN to 9 nN on ethylene-octene copolymer the low-force 1st contact resonance is substituted by another one. This effect is caused by tip penetration through an amorphous top layer to a sub-surface lamellar structures.

