Using the Sader Method GCI – API Interface (Asylum Research)

Enter your username and password for the Sader Method GCI (sadermethod.org), and press Enter, to enable the GCI Panel.

Thermal frequency, quality factor and spring constant in the GCI Panel are taken directly from the Thermal Panel in the Asylum Research AFM Software.

Retract your cantilever at least 100 µm from the surface prior to taking a Thermal.

Approach 1:

First calibrate the spring constant using the Thermal Method.

Tick the Enable checkbox next to Thermal Spring Constant.

Select your Lever from the pull down menu and press 'Upload & Calculate'.

The frequency, quality factor and spring constant are merged with the GCI database. The Sader Method gives a new calculation of your spring constant and its uncertainty.

Approach 2:

Measure and fit a Thermal only (InvOLS not required).

Ensure the Enable checkbox next to Thermal Spring Constant is NOT ticked.

Select your Lever from the pull down menu and press 'Calculate'.

Only the frequency and quality factor are sent to the GCI. The Sader Method uses the existing database to calculate your spring constant and its uncertainty.

Approach 1 lets users contribute their data to the international database, and compares their calibration measurements to those of others - letting users help each other and providing a global reference point for AFM force measurements.

The Thermal spring constant is your locally calibrated value, whereas the Sader spring constant is standardised internationally. Check your measurements if there is a large difference between these values; see Reference (below).

Request a lever: Users request cantilever models to be added to the GCI via this link.

Register: Users register via this link.

Status: Indicates if InvOLS is calibrated and whether Approach 1 or 2 is used.

NOTE: Take measurements of the fundamental flexural mode in air. The GCI reports the static normal spring constant at the imaging tip position.

Reference: Sader *et al*., arXiv:1605.07750 (2016).