

report bioafmlab meeting 06-11-07**From:** Federica Galli <galli@physics.leidenuniv.nl> (LION)**To:** oosterkamp@physics.leidenuniv.nl**CC:** aartsma@physics.leidenuniv.nl, katan@physics.leidenuniv.nl, es@physics.leidenuniv.nl, rijsewijk@physics.leidenuniv.nl, magis@physics.leidenuniv.nl, noort@physics.leidenuniv.nl, Heeres@Physics.LeidenUniv.nl, stan@physics.leidenuniv.nl, frese@physics.leidenuniv.nl, patil@physics.leidenuniv.nl, k.wagner@chem.leidenuniv.nl, bahatyrova@physics.leidenuniv.nl, liuln@physics.leidenuniv.nl, beker@physics.leidenuniv.nl, loo@physics.leidenuniv.nl, a.korobko@chem.leidenuniv.nl, "Jaeger, M. de" <Jaeger@Physics.LeidenUniv.nl>, Jan-Willem Beenakker <jw@beenakker.com>, "Yuana, Y. \(\ONCO\)" <Y.Yuana@lumc.nl>, f.wiertz@chem.leidenuniv.nl, zhang@physics.leidenuniv.nl, beekman@physics.leidenuniv.nl, kelly@physics.leidenuniv.nl, komissarov@physics.leidenuniv.nl, he@physics.leidenuniv.nl, d.georgieva@chem.leidenuniv.nl, kamran@physics.leidenuniv.nl, Ashcroft@physics.leidenuniv.nl**Date:** 2007-11-07 15:40

Present: Werner, Razvan, Brian, Anne France, Maarten, Federica, Dilyana.

Dilyana:

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Now busy with dynamical corrections in electron diffraction to allow determination of structure of small protein crystals (less than 50 angstrom).

Brian:

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Testing tips on new AAA tissue. Measuring approach curves with sharp tips and ball tips (~5um diameter silicon ball at the end of the tip). Finds kinks in the approach curves (up to 5 diff. slopes) for ball tips and confirms previous (Jan-Willems et al.) results.

Werner:

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While testing piezoresistive cantilevers finds out that the Perkin Elmer lock-in amplifier (nominal 2MHz) might have significantly reduced BW at high amplifications (for small input signals, ~ 50uV). Further checks are necessary to conclude this.

Razvan:

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Performed some STM imaging (100x100 nm²) to test stability of wall AFM after installation of klimaatunit. Note that the DI head is normally covered by a fully closed metallic box (Faraday cage) in STM mode.

1. first measurement: T-start=24 C (Tamson bath) and T-start=27 at the sample, T-set=12 C, T-reached-at-the-radiator=14 C, T-reached-at-the-sample=unknown.

2. 2nd measurement: T-start=24 C and 27 C at the sample, T-set=-15 C, T-reached-inside-the-bath-after-8hrs=-1 C, T-reached-at-the-radiator=4 C, T-reached-at-the-sample= 10 C.

STM images become more stable when the temperature was settled after 8 hrs.

Pending issues and improvements/suggestions:

1. scan smaller sizes and check how a HOPG atomic lattice, for example, is distorted or not (if no drift).
2. isolate the tubes and isolate the window of the sound box to reduce the heat load and loss. Note that the Tamson bath cooling power (possibly specified for small or no heat load) is 75 W at -12 C.
3. move the fans in a lower position to improve cooling efficiency.
4. make holes in the STM shielding cage or use a metal grid instead.

No one -of the present people- has complaints about the fans (air turbulence, mechanical and/or electrical interference).

Please send any correction/suggestion, then the report will be uploaded to the wiki.

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