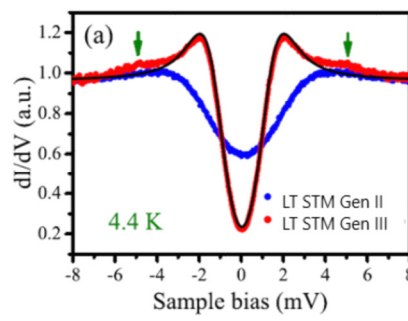
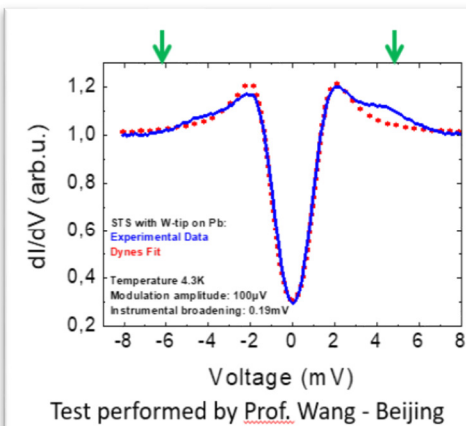


RF-Filter for STM

dI/dT spectroscopy with outstanding energy resolution



- STM dI/dV spectroscopy energy resolution not limited by instrument
- easy to adapt on each LT-STM with BNC feedthrough (LT STM upgrade to coax S/S0 + 2xBNC feedthrough available for older instruments)
- Including Preamp adapter cable (dsub 25 to bnc) with adjusted compensation for capacitive crosstalk
- Compatible to LT-STM and LT-SPM QPlus instruments



Liu et al.: stacks.iop.org/SUST/26/085009

LT-STM: Improved energy resolution

HF filters demonstrated on Pb sample with W-tip

Clearly resolved transverse phonon modes (green arrows)

Instrumental broadening <110uV

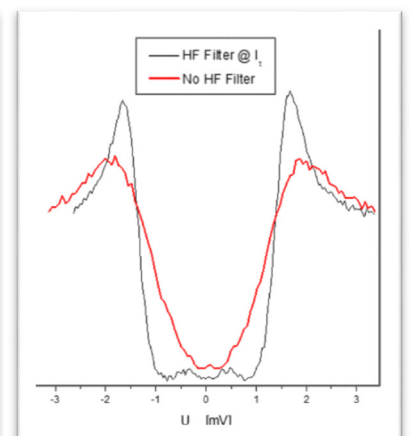
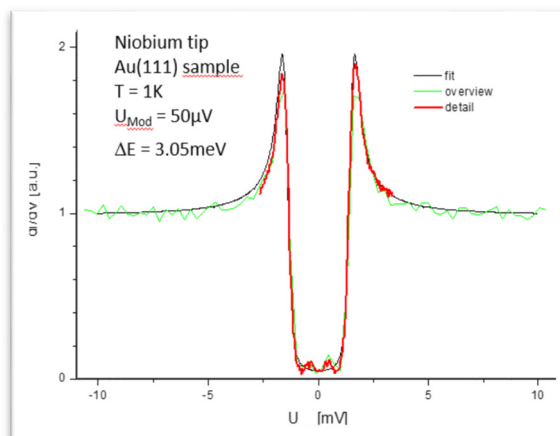
TESLA JT SPM:

Gap width 3.05 meV acc. To BCS

Confirmation of microscope temperature $T = 1K$

Negligible instrumental energy broadening (HF filters used)

Life time broadening of Dynes fit: $70\mu V$



Summary

Parts needed:

- RF Filter Set (IT + Sample, PIC, TCC)
- Preamp adapter cable

Requirements:

- BNC Feedthrough (IT + Sample) for SPM Preamp

Limitations:

- In some cases capacitive compensation needs adjustment onsite
- Available for LT-STM, TESLA JT SPM