Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

Using a Geophone for Vibration Cancellation in a STM ALAN FANG, ZHANYBEK ALPICHSHEV, AHARON KAPITULNIK, Stanford University — We demonstrate a method for using a geophone (velocity-sensitive vibration sensor) for reducing the vibration-induced tunnel current noise in a Scanning Tunneling Microscope (STM). Some simple analog circuitry compensates for the transfer function of the geophone and STM head. This error signal is then fed back to the scan piezos. Although the geophone is placed one meter away from the STM head, (due to the low temperature and UHV requirements) we show a noise reduction performance of approximately 5x or better. Further improvements to the system are discussed.

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Date submitted: 27 Nov 2007 Electronic form version 1.4