Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Towards a Dual-Tip STM Applications in Mesoscopic Surface Transport RAMI DANA, YISHAY MANASSEN, Ben-Gurion University, Israel — A DTSTM based on the mechanically controllable break junction (MCBJ) with two fabricated electron beam induced deposition (EBID) nanotips was developed. Unlike the traditional bending which applies lateral force on the junction, in the new design, the breaking mechanism applies torque on a virtual axle running through the junction. The junction is curved in Si wafer by double-sided anisotropic etching to form 30 micron wide bridge as a base for EBID tips. Nanotips with controlled architecture and from variety of materials are then fabricated on each side of the junction to establish a dual-tip system. Integration of the special characteristics of MCBJ and EBID, leads to a DTSTM capable of ∼50 nm probe separation, as presented in this work. On these scales more local and less averaged information can be collected; thus, new insight on electron transport phenomena on the nanoscale will hopefully be gained. The nature of current flow on these scales can be interesting from both fundamental physics and device application points of views. More on this work can be found at http://physweb.bgu.ac.il/∼ramid/

Rami Dana
Ben-Gurion University, Israel

Date submitted: 17 Nov 2009 Electronic form version 1.4