

Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Zero-bias anomaly and possible superconductivity in single-walled carbon nanotubes¹ JIAN ZHANG², ALEXANDER TSELEV³, YANFEI YANG, KYLE HATTON, PAOLA BARBARA, Georgetown University, SERHII SHAFRANIUK, Northwestern University — We report measurements of field-effect transistors made of isolated single-walled carbon nanotubes contacted by superconducting electrodes. For large negative gate voltage, we find a dip in the low-bias differential resistance. Remarkably, this dip persists well above the superconducting transition temperature of the electrodes, indicating that it is *not* caused by superconducting proximity effect from the electrodes. This conclusion is supported by measurements on carbon nanotubes contacted by normal electrodes showing similar features. One possible explanation is superconductivity in the nanotubes, occurring when the gate voltage shifts the Fermi energy into van Hove singularities of the electronic density of states.

¹This work was supported by the NSF (DMR 0239721), the Research corporation and the ACS (PRF 39152G5M)

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Date submitted: 17 Nov 2006

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