Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

The electron-hole superfluidity in two coaxial nanotubes ILYA GRIGORENKO, OLEG BERMAN, ROMAN KEZERASHVILI, Physics Department, New York City College of Technology, The City University of New York, Brooklyn, NY 11201, USA — The superfluid phase and Coulomb drag effect caused by the pairing in the system of spatially separated electrons and holes in two coaxial cylindrical nanotubes are predicted. It is found that the drag resistance as a function of the temperature experiences a jump at the critical temperature and can be used for the detection of the superfluid transition. It is also demonstrated that at sufficiently low temperatures the order parameter exhibits a kink, as the electron-hole asymmetry monotonously increases.

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Date submitted: 14 Nov 2013 Electronic form version 1.4