

Abstract Submitted
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Magnetic field induced superconductivity in out-of-equilibrium Zn nanowires¹ YU CHEN, STEPHEN SNYDER, ALLEN GOLDMAN, School of Physics and Astronomy, University of Minnesota, SCHOOL OF PHYSICS AND ASTRONOMY, UNIVERSITY OF MINNESOTA TEAM — We report on electrical transport measurements of Zinc nanowires prepared using electron beam lithography. The wires, when driven resistive by current, re-enter the superconducting state upon application of small magnetic fields.[Chen et al., PRL 103, 127002] This occurs at temperatures well below the zero-magnetic field critical temperature. The parameter space of this out-of equilibrium field-induced reentrant superconductivity has been investigated by changing the magnetic field orientation as well as the length of the nanowires. The results suggests this to be a nonequilibrium effect and that the quasiparticle population in the Zn electrodes plays a central role in the re-entrance phenomenon.

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