

Abstract Submitted
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Current-induced anomalous negative magnetoresistance in Zn nanowires.¹ YU CHEN, STEPHEN SNYDER, ALLEN GOLDMAN, School of Physics and Astronomy, University of Minnesota — Quasi-one dimensional superconducting Zn nanowires, connected with wide Zn electrodes, were fabricated using electron-beam lithography. The Zn was deposited with the substrates held at liquid nitrogen temperature. At temperatures well below the nanowires' transition temperature, four-terminal measurements of resistance showed an anomalous negative magnetoresistance when applying a current slightly higher than its critical current in zero magnetic field. The magnitude of this negative magnetoresistance can be as large as 50 percent even with applied field as low as few Oersted. This effect was found over a narrow range of temperatures, which depended upon the applied current. At this writing, the origin of the effect is unclear.

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Yu Chen
School of Physics and Astronomy, University of Minnesota

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