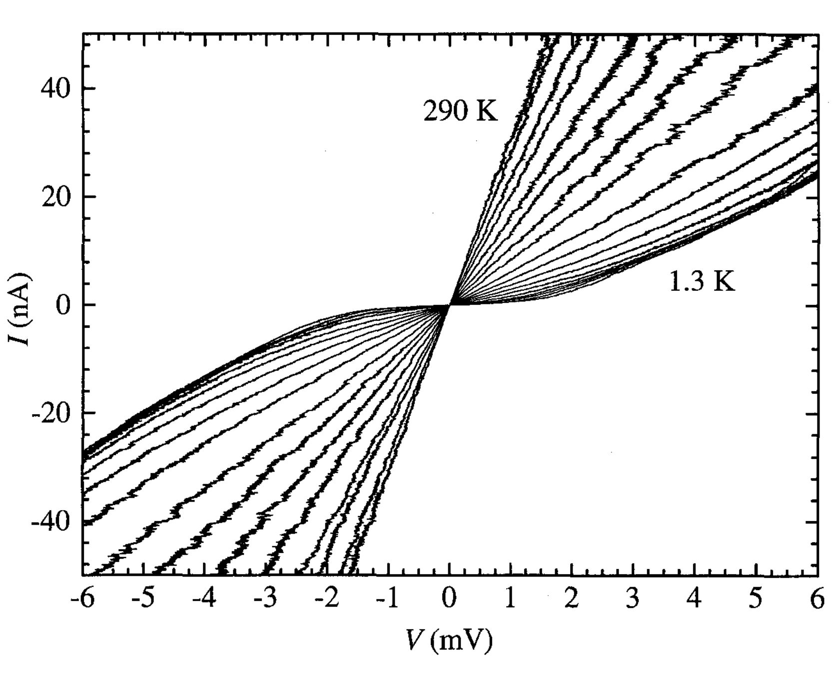
Figures appearing in EDITOR'S CHOICE *are those arising from materials research which strike the editor's fancy as being aesthetically appealing and eye-catching. No further criteria are applied and none should be assumed. When taken out of context, such figures often evoke images beyond and unrelated to the original meaning. Submissions of candidate figures are welcome and should include a complete source citation, a photocopy of the report in which it appears (or will appear), and a reproduction-quality original drawing or photograph of the figure in question.*



Absent the tick marks and labels, we could escape the true meaning of the noisy curves in this month's EDITOR'S CHOICE and imagine all sorts of things. Electrical discharges from a high-tension tip, an artist's rendition of seismometer traces emanating from an epicenter, a nose-to-nose collision of dirigibles, or the pinch-off point in a twisted balloon are possibilities. In fact, there is some electrical aspect here as the current- and voltage-labeled axes betray. And, there is also a pinching phenomenon of sorts at play. This is a set of *I-V* curves for temperatures from room down to 1.3 Kelvin measured on a "nano-rope." That is, on a 12-nanometer ropelike bundle of about 60 carbon nanotubes. It's clear as the temperature drops that the conductance drops (that's the slope of the curve in this case) until below about 10 Kelvins at low voltages, it becomes nearly zero—i.e., it's pinched off. In quantum parlance, a gap has developed. The electrons that dribble through the subset of 1.4-nanometer single-walled (10,10)* tubes in particular encounter a Coulomb blockade (which seems more belligerent than a pinch) where there is just not enough energy available to put an electron into this one-dimensional conductor. Not to be completely thwarted, some of the more resolute electrons do manage to tunnel through the blockade (resonantly we're told). There are of course some additional details, such as how the available charge per unit length of a tube or rope is controlled. They are all explained by Bockrath et al.** from whom this figure is taken. The authors suggest that a filamentary conduction path through the rope must obtain. But don't get your hopes up about filaments in general. A rough Edisonian estimate based on the power dissipated at the upper right of our figure would indicate that about 400 billion of these little ropes would be needed in a 100 Watt light bulb.

*Nanotube structures are classified according to an (*n,m*) set of indices and the (10,10) is expected to conduct.

M. Bockrath, D.H. Cobden, P.L. McEuen, N.G. Chopra, A. Zettl, A. Thess, and R.E. Smalley, *Science* **275 (28 March 1997) pp. 1922–1925.

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