

**PUBLISHER**

Charles Harris

**EDITOR/ASSOCIATE PUBLISHER**

Kenneth J. McNaughton

**ART DIRECTOR**

Steven R. Black

**CONTRIBUTING EDITORS**Nancy Forbes  
Jennifer Ouellette  
David Pope  
Patrick Young**COPY EDITOR**

Jay C. Cherniak

**CIRCULATION DIRECTOR**

Kenneth C. Brooks

**ADVERTISING MANAGER**

Abby Singer Klar

**PRODUCTION MANAGER**

Christine DiPasca

**ADVISORY COMMITTEE**John Rowell (chair),  
Adam C. Daire, Charlotte Lowe-Ma,  
Richard H. Lyon, Thomas R. Steele,  
Richard E. Swanson,  
Charles Harris (staff liaison)**EDITORIAL OFFICES**One Physics Ellipse  
College Park, MD 20740-3843  
Tel: 301-209-3051  
Fax: 301-209-0842  
e-mail: tip@aip.org**ADVERTISING OFFICES**500 Sunnyside Boulevard  
Woodbury, NY 11797-2999  
Tel: 516-576-2440  
800-247-2242  
e-mail: advtsg@aip.org**WORLD WIDE WEB**<http://www.aip.org/tip>**AMERICAN  
INSTITUTE  
OF PHYSICS****EXECUTIVE DIRECTOR AND CEO**

Marc H. Brodsky

**MEMBER SOCIETIES**The American Physical Society  
Optical Society of America  
Acoustical Society of America  
The Society of Rheology  
American Association of Physics Teachers  
American Crystallographic Association  
American Astronomical Society  
American Association of Physicists in Medicine  
American Vacuum Society  
American Geophysical Union**OTHER MEMBER ORGANIZATIONS**Corporate Associates  
Sigma Pi Sigma Physics Honor Society  
Society of Physics Students**LETTERS**

## Battery technology

On the whole, I found the Brief, "Advancing Battery Technology," in the September 1998 issue [p. 23] to be very good and informative. However, it describes work on zinc-air batteries in a way that might be misinterpreted. The zinc-air power source that I am developing has no relation whatsoever to the zinc-air battery used by Electric Fuel Corp. My work involves a zinc-air "battery" that operates as a fuel cell, which feeds zinc fuel pellets from an external hopper into fixed electrochemical cells, while Electric Fuel's approach involves exchange of exhausted zinc electrodes. Although both approaches make use of the same chemistry, they are mechanically very different.

John F. Cooper

Chemistry and Materials Sciences  
DirectorateLawrence Livermore National Laboratory  
Livermore, California  
[cooper@oxygen.llnl.gov](mailto:cooper@oxygen.llnl.gov)

[Author replies: My intention was simply to credit Dr. Cooper's pioneering work on zinc-air power sources. I did not mean to imply that Electric Fuel Corp. was using the technology he has developed. Dr. Cooper's zinc-air fuel cell has been successfully tested on a borrowed, electrically powered municipal bus, and is being investigated as a standby electricity generating system for peak loads and for operations that require an uninterruptible power supply. The spent zinc oxide electrolyte slurries may be efficiently converted to new zinc fuel pellets by electrolysis in a fluidized bed, using hydrogen as a reactant.—David Pope]

David Pope discusses—among other subjects—advances in battery technology. I'm betting that automotive applications will have the largest societal impact (and also the biggest market), but for these applications there are other candidates for cleaner power sources. I'd like to see a comparison of such candidates as fuel cells, with batteries.

Chuck Jolliffe

Sciex

Concord, Ontario, Canada  
[jollifcn@sciex.com](mailto:jollifcn@sciex.com)

## Wireless world

Back in the late 1970s and early 1980s, a significant amount of study was conducted on the effects of non-ionizing radiation on human health. I have heard differing results from those studies, mostly depending on what agency was conducting the specific study. However, the overall result, as I remember, was that enough questions were unresolved to warrant long-term study of the problem.

Your article "Get Ready for a Wireless World" [9/98, p. 17] further supports the feasibility of such a study. As we continue to inundate our environment with non-ionizing radiation, the accumulative effects over a long period should, hopefully, either become obvious or be discounted. Perhaps certain frequencies, modes of modulation, or, more probably, certain power levels may be found to be hazardous while others are not. However, unless a large-scale, long-term, organized (i.e., unified) effort to collect such data is made (much like the long-term collection of weather information), we may be creating an



**THE INDUSTRIAL PHYSICIST** (ISSN 1082-1848; CODEN INPHFA), volume 4, number 4, is published by the American Institute of Physics, 500 Sunnyside Boulevard, Woodbury, NY 11797. **Subscriptions.** *The Industrial Physicist* is available on a free subscription basis to qualified parties who fill in, sign, and mail the enclosed form. Nonqualified parties may subscribe at the following annual rates: members of affiliated societies, \$18; non-member individuals, \$24; institutions, \$48. Please add \$15 for foreign delivery via surface mail (including Canada and Mexico) and \$30 for international delivery by expedited air freight. Single copies are available for \$20 (postage paid). Contact the editorial office. **Other information.** For change of address and other subscription information contact *The Industrial Physicist*, P.O. Box 96000, Collingswood NJ 08108-9944; tel. 609-488-1881; fax 609-488-6188. Copyright © 1998 American Institute of Physics. Republication or systematic or multiple reproduction of any material in this publication is permitted only under license from AIP. Please send requests for permission to AIP Office of Rights and Permissions, 500 Sunnyside Blvd., Woodbury, NY 11797-2999; fax (516-576-2327); phone (516-576-2268); email ([rights@aip.org](mailto:rights@aip.org)). Copies of articles may be made upon payment of a copying fee of \$15 per copy through the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

environment, both locally (within our homes or offices) and globally that will prove as dangerous as global warming, with the long-term effects of DDT.

Thomas R. Giasomo  
ITT Technical Institute  
Getzville, New York

## Rogue art

I enjoy your magazine very much and usually read almost every article in an issue. There is one thing that has bothered me several times in recent issues. The articles are often accompanied by some very intriguing pictures that have no caption to explain what they are. Sometimes I think I recognize part of what is in the picture, say a microfabricated device, and I want to know whether it really is what it looks like to me. Or I wonder about the technique used to obtain the image. I know that some of these images are being used as a kind of art

to make the page look more interesting, but it can be frustrating to see something seemingly close to one's own research and not be able to find any description of it. Other than this one complaint, I think *The Industrial Physicist* is great. The quality of the writing and the variety of topics covered are excellent. Keep up the good work.

Mark Keller  
Cryoelectronics Group  
National Institute of Standards and  
Technology  
Boulder, Colorado  
mark.keller@boulder.nist.gov

[Thanks for your keen interest in the magazine and the artwork. The art director sometimes manipulates art from relevant sources with the intent of giving the whole issue an interesting and cohesive feel. This approach may not always make it possible to give full information on each item, but

we will endeavor to supply more information in the future.—Ed.]

## Listen up

Rah, Rah, Rah, Sis Boom Bah - - Yeah, Industrial Physicist Magazine!! I have just re-read the many fascinating articles in the June 1998 issue of TIP and offer the following comment: You Have a Winner. Not to worry, however, as I will not let TIP "cannibalize" me away from *Physics Today*, which is also thoroughly read and appreciated. TIP is refreshing and has a wonderful layout, great graphics, and interesting articles—Hugely interesting. It's a magazine that my co-workers keep stealing from my desk to read. Please list me in your survey as Ardent Fan. Thanks for a great magazine.

Morton Durham  
MeiVac, Inc.  
San Jose, California  
morton@meivac.com 