

NEWS & ANALYSIS

16 | **TECH NEWS**

Photonics Spectra editors curate the most significant photonics research and technology headlines of the month – and take you deeper inside the news. Featured stories include:

- Zinc oxide microwires boost LED performance
- Spin lasers could push data into the fast lane
- Chemically assembled metamaterials pave way for superlenses

34 | **FASTTRACK**

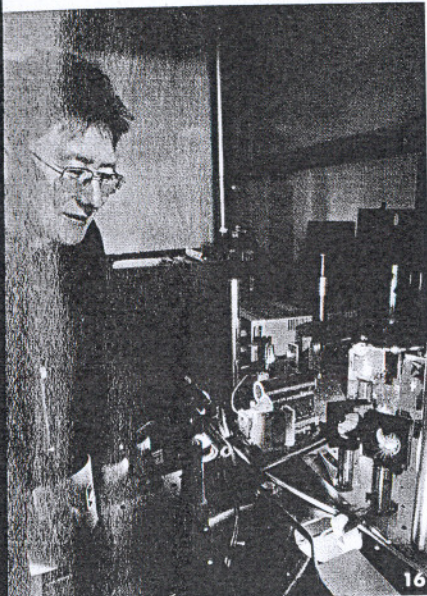
Business and Markets

2011 Prism Award finalists announced
Tokyo gears up for Photonix Expo

55 | **GREENLIGHT**

by Marie Freebody, Contributing Editor

Sensor Reveals 1000 Colors Across Land, Sea, Space



DEPARTMENTS

- 10 | **EDITORIAL**
- 106 | **BRIGHT IDEAS**
- 127 | **HAPPENINGS**
- 129 | **ADVERTISER INDEX**
- 130 | **PEREGRINATIONS**

To seek out the soft glow of new life and new civilizations

THE COVER

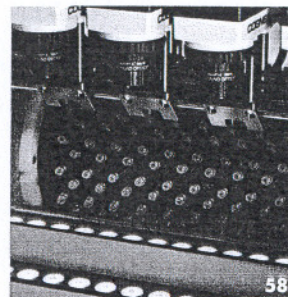
The cover of the 2012 trends issue was designed by Juliana Willey.



FEATURES

58 | **SURPRISING SURGES, CAUTIOUS EXPECTATIONS, POSITIVE OUTLOOKS**

by Laura S. Marshall, Managing Editor
Leading lights of the photonics industry share their perspectives on the market's current and future health.



58

68 | **MASS-MARKET IMAGING SYSTEMS CUT TIME, COST, SIZE**

by Marie Freebody, Contributing Editor
Liquid lenses, 3-D mapping and ever-smaller cameras are helping bring to fruition applications such as stretchable optoelectronics and robots that guide the blind.

78 | **PUTTING MORE THAN GLASS IN THE TOOLBOX**

by Hank Hogan, Contributing Editor
Alternative optical materials such as polymers and metamaterials have increased in quality, enabling systems that can do more in a smaller space.

86 | **MEDICAL MARKETS AND NEW NICHE DRIVE LASER ADVANCES**

by Lynn Savage, Features Editor
The health of laser manufacturing is fairly robust, thanks in large part to novel applications in surgery and biomedical research.



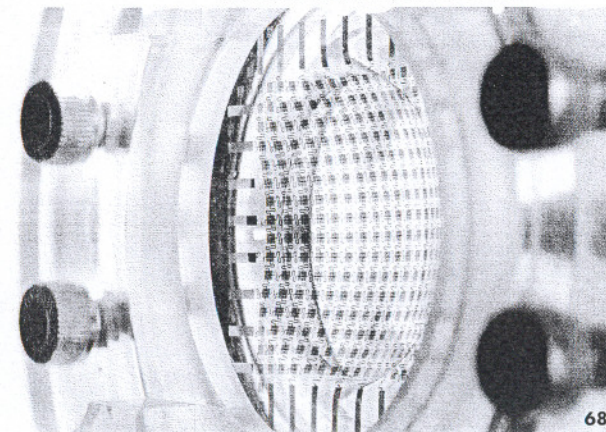
94

94 | **A BRAVE NEW WORLD OF PHOTONICS**

by Gary Boas, Contributing Editor
Photonics experts predict which visionary applications in the automobile, solar, defense and lighting industries could become a reality in 20 to 50 years.



PHOTONICS SPECTRA ISSN-0731-1230, (USPS 448870) IS PUBLISHED MONTHLY BY Laurin Publishing Co. Inc., Berkshire Common, PO Box 4949, Pittsfield, MA 01202, +1 (413) 499-0514; fax: +1 (413) 442-3100; e-mail: photonics@photonics.com. TITLE reg. in US Library of Congress. Copyright © 2012 by Laurin Publishing Co. Inc. All rights reserved. Copies of Photonics Spectra on microfilm are available from University Microfilm, 300 North Zeeb Road, Ann Arbor, MI 48103. Photonics Spectra articles are indexed in the Engineering Index. POSTMASTER: Send form 3579 to Photonics Spectra, Berkshire Common, PO Box 4949, Pittsfield, MA 01202. Periodicals postage paid at Pittsfield, MA, and at additional mailing offices. CIRCULATION POLICY: Photonics Spectra is distributed without charge to qualified scientists, engineers, technicians, and management personnel. Eligibility requests must be returned with your business card or organization's letterhead. Rates for others as follows: \$122 per year, prepaid. Overseas postage: \$28 surface mail, \$108 airmail per year. Inquire for multiyear subscription rates. Publisher reserves the right to refuse nonqualified subscriptions. ARTICLES FOR PUBLICATION: Scientists, engineers, educators, technical executives and technical writers are invited to contribute articles on the optical, laser, fiber optic, electro-optical, imaging, optoelectronics and related fields. Communications regarding the editorial content of Photonics Spectra should be addressed to the managing editor. Contributed statements and opinions expressed in Photonics Spectra are those of the contributors – the publisher assumes no responsibility for them.



68