

Cover image

Illustration of random lasing action from photonic glass.

Letter p429

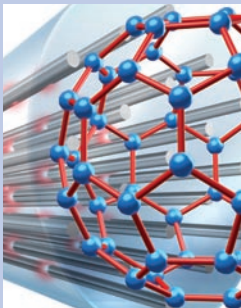
News & Views p397



CLEO HIGHLIGHTS

Gravity waves and artificial black holes were both hot topics at this year's CLEO.

News & Views p395



NANOROD LENS

A stack of metal nanorods could be the answer for colour subwavelength imaging.

Article p438

News & Views p387



nature publishing group

nature photonics

Vol.2 No.7 July 2008

www.nature.com/naturephotonics

EDITORIAL

383 **In the limelight**

RESEARCH HIGHLIGHTS

384 **Hyperentanglement, delayed images, exciton logic, and more**

NEWS & VIEWS

387 **Plasmonics: Subwavelength imaging in colour**

Peter Nordlander

388 **Photonic circuits: Organic integration**

Rachel Won

389 **Silicon photonics: Lighting up the chip**

Attila Mekis

390 **X-ray imaging: Ultrafast diffract-and-destroy movies**

John Spence

392 **Photon counting: Avalanche inspiration**

Gerard Milburn

393 **Data storage: Blue laser battle**

Nadya Ansccombe

394 **Photodynamic therapy: Two photons are better than one**

Stanley Brown

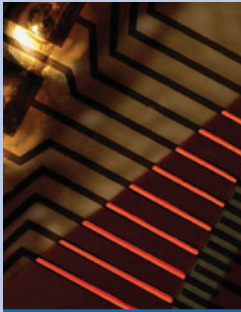
395 **View from...CLEO/QELS 2008: Scientific exploration comes to the fore**

Amber Jenkins

397 **Random lasers: Resonance control**

M. A. Noginov

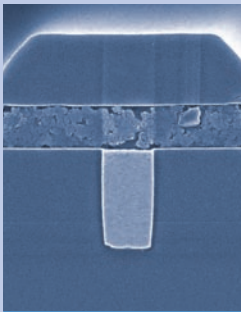
Nature Photonics (ISSN 1749-4885) is published monthly by Nature Publishing Group (Porters South, 4 Crinan Street, London N1 9XW, UK). Editorial Office: Chiyoda Building, 5-6th Floor, 2-37 Ichigayatamachi, Shinjuku-ku, Tokyo, 162-0843, Japan. Telephone: +81 (0)3 3267 8751. Fax: +81 (0)3 3267 8754. Email: naturephoton@nature.com. North American Advertising: *Nature Photonics*, 75 Varick Street, 9th Floor, New York, NY, 10013-1917, USA. Telephone: +1 212 726 9200. Fax: +1 212 696 9006. European Advertising: *Nature Photonics*, Porters South, 4 Crinan Street, London N1 9XW, UK. Telephone: +44 (0)20 7833 4000. Fax: +44 (0)20 7843 4596. Asia-Pacific Advertising: *Nature Photonics*, Chiyoda Building, 5-6th Floor, 2-37 Ichigayatamachi, Shinjuku-ku, Tokyo, 162-0843, Japan. Telephone: +81 (0)3 3267 8754. Fax: +81 (0)3 3267 8746. New subscriptions/renewals/changes of address/back issues and all other customer service questions should be addressed to - North America: *Nature Photonics*, Subscription Department, 303 Park Avenue South PMB 1280, New York, NY 10160-0538, USA. Telephone: +1 (866) 363 7860. Fax: +1 (212) 689 9108. Outside North America: Subscriptions Department, Brunel Road, Basingstoke, Hants, RG21 6XS, UK. Telephone: +44 (0)1256 329242. Fax: +44 (0)1256 812358. Japan: Nature Asia-Pacific, Chiyoda Building, 5-6th Floor, 2-37 Ichigayatamachi, Shinjuku-ku, Tokyo, 162-0843, Japan. Telephone: +81 (0)3 3267 8751. Annual subscription rates: US/Canada US\$2730, Canada add 7% GST (institutional/corporate), US\$152, Canada add 7% GST (individual making personal payment); UK/Europe/Rest of World (excluding Japan) £1400 (institutional/corporate), £78 (individual making personal payment). For single back issue prices contact the publisher. *Nature Photonics* (ISSN 1749-4885) is published monthly by Nature Publishing Group, c/o Mercury Airfreight International Ltd, 365 Blair Road, Avenel, NJ 07001, USA. Periodicals postage is paid at Rahway NJ. Postmaster: send address changes to *Nature Photonics*, c/o Mercury Airfreight International, 365 Blair Road, Avenel, NJ 07001, USA. Reprints: *Nature Photonics*, Reprints Department, Porters South, 4 Crinan Street, London N1 9XW, UK. Subscription information is available at the *Nature Photonics* homepage at <http://www.nature.com/naturephotonics>. Postmaster: send address changes to *Nature Photonics*, Subscriptions Department, 303 Park Avenue South PMB 1280, New York, NY 10160-0538, USA.



ORGANIC CHIPS

Integration of organic LEDs into a photonic circuit could lead to small, monolithic sensors.

[News & Views p388](#)



EFFICIENT ANSWER

A silicon-based electro-absorption modulator operates on the femtojoule level.

[Letter p433](#)
[News & Views p389](#)



VOLUME STORAGE

Two-photon techniques allow data storage to enter a new dimension

[Industry Perspective p406](#)

TECHNOLOGY FOCUS: OPTICAL DATA STORAGE

EDITORIAL

401 [A matter of format](#)

RESEARCH HIGHLIGHTS

402 [Dots boost data storage, phase-change revelations, and more](#)

INDUSTRY PERSPECTIVE

403 [Holographic data storage: Coming of age](#)
Lisa Dhar, Kevin Curtis and Thomas Fäcke

406 [Two-photon technology: A new dimension](#)
Edwin Walker and Peter M. Rentzepis

BUSINESS NEWS

410 [Blue-laser patent battles, optical-disk test standards, and more](#)

PRODUCT HIGHLIGHTS

411 [Laser-diode developments, dual-layer disk manufacture, and more](#)

INTERVIEW

412 [After the format war](#)
Interview with David Bunzel

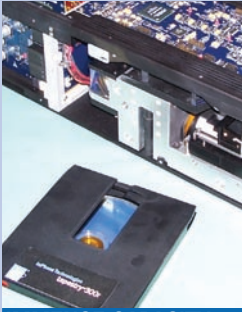
LETTERS

415 [Ultrafast single-shot diffraction imaging of nanoscale dynamics](#)
Anton Barty, Sébastien Boutet, Michael J. Bogan, Stefan Hau-Riege, Stefano Marchesini, Klaus Sokolowski-Tinten, Nikola Stojanovic, Ra'anan Tobey, Henri Ehrke, Andrea Cavalleri, Stefan Düsterer, Matthias Frank, Saša Bajt, Bruce W. Woods, M. Marvin Seibert, Janos Hajdu, Rolf Treusch and Henry N. Chapman **N&V**

420 [Blood-vessel closure using photosensitizers engineered for two-photon excitation](#)
Hazel A. Collins, Mamta Khurana, Eduardo H. Moriyama, Adrian Mariampillai, Emma Dahlstedt, Milan Balaz, Marina K. Kuimova, Mikhail Drobizhev, Victor X. D. Yang, David Phillips, Aleksander Rebane, Brian C. Wilson and Harry L. Anderson **N&V**

425 [An avalanche-photodiode-based photon-number-resolving detector](#)
B. E. Kardynał, Z. L. Yuan and A. J. Shields **N&V**

429 [Resonance-driven random lasing](#)
Stefano Gottardo, Riccardo Sapienza, Pedro D. García, Alvaro Blanco, Diederik S. Wiersma and Cefe López **N&V**



IMMENSE CAPACITY

Holographic data storage prepares to enter the marketplace.

Industry Perspective
p403

- 433 **Waveguide-integrated, ultralow-energy GeSi electro-absorption modulators**
Jifeng Liu, Mark Beals, Andrew Pomerene, Sarah Bernardis, Rong Sun, Jing Cheng, Lionel C. Kimerling and Jurgen Michel **N&V**

ARTICLES

- 438 **Subwavelength colour imaging with a metallic nanolens**
Satoshi Kawata, Atsushi Ono and Prabhat Verma **N&V**

PHOTONICS AT NPG

- 443 **A round-up of recent papers in the field of photonics published by the physical sciences division of the Nature Publishing Group.**

INTERVIEW

- 446 **Not so random**
Interview with Diederik Wiersma

CLASSIFIEDS

See the back pages