

CLEO and IQEC in Baltimore

CLEO '87, the seventh Conference on Lasers and Electro-optics will be held in Baltimore, Maryland, from Monday, 27 April, to Friday, 1 May, jointly with the fifteenth International Quantum Electronics Conference. Both meetings will take place at the Baltimore Convention Center.

CLEO is sponsored by the Optical Society of America and the IEEE Lasers and Electro-Optics Society, in cooperation with the quantum electronics division of the European Physical Society and the Japanese Quantum Electronics Joint Group. The latter consists of the Institute of Electronics and Communications Engineers of Japan,

the Institute of Electrical Engineers of Japan, the Japan Society of Applied Physics and the Laser Society of Japan. IQEC is sponsored by The American Physical Society, the IEEE Lasers and Electro-Optics Society and OSA, also in cooperation with the EPS quantum electronics division and the Japanese Quantum Electronics Joint Group. The accompanying table lists the invited and joint sessions in detail.

On Sunday the Laser Institute of America will hold six half-day courses on the fundamentals of lasers, diode lasers, the use of lasers in surgery and medicine, the generation and measurement of femtosecond pulses, optical

bistability and optical phase conjugation. The Institute will also offer a full-day course on industrial and engineering laser applications. All courses will be held at the convention center.

Awards. At the joint awards ceremony on Monday afternoon Hermann A. Haus (Massachusetts Institute of Technology) will receive the Charles Hard Townes Award, and the IEEE Lasers and Electro-Optics Society will present its quantum Electronics Award (winner to be announced at the session).

Haus is being honored for his analysis of laser noise, for his development of the mode-locked semiconductor laser, and for his contributions to the under-

Invited sessions and papers

Monday

- IQEC: Physics of sources—Plasma processes. *T. Mochizuki*
- CLEO: Gas lasers—Advanced laser concepts. *I. J. Bigio*
- IQEC: Optical interactions with solids and liquids—Quantum confined devices. *E. Yablonovich, K. Vahala*
- IQEC: Physics of sources—Laser interactions. *E. M. Campbell, R. L. Kauffman, L. F. Mollenauer*
- CLEO: Semiconductor diode lasers—Laser diode spectral properties. *S. Tsuji*
- IQEC: Laser spectroscopy and physics—Fundamental quantum measurements. *G. Leuchs, N. Fortson*
- CLEO: Gas lasers—Metal vapor lasers. *R. C. Tobin*
- IQEC: Optical interactions with solids and liquids. *H. Asahi*
- CLEO: Ultrafast optics and electronics—Ultrafast fiber Raman generation and detection. *Y. Tsuchiya*

afternoon

- CLEO-IQEC: Joint plenary session. *R. L. Byer, R. M. Osgood, N. Bloembergen, S. Chu*

Tuesday

morning

- CLEO-IQEC: Joint session on clusters and materials. *W. C. Lineberger, A. Kaldor*
- IQEC: Optical interactions with solids and liquids—Silicon. *H. Tom*
- CLEO: Lasers in chemistry—Sensitive-selective detection. *R. A. Keller*
- IQEC: Optical interactions with solids and liquids—Nonlinear effects in quantum wells. *J. Bevk*
- CLEO: Optical materials—Laser materials. *R. D. Dupuis*
- IQEC: Nonlinear optics—Squeezed states. *H. J. Kimble*
- IQEC: Optical interactions with solids and liquids—Symposium on ultrafast phenomena. *J. G. Fujimoto*
- CLEO: Semiconductor diode lasers. *T. Suzuki*
- IQEC: Optical interactions with solids and liquids—Low-dimensional quantum wells. *P. Petroff, Y. Kato*
- CLEO-IQEC: Joint session on clusters and materials. *L. E. Brus, J. S. Haggerty*
- IQEC: Nonlinear optics—Squeezed states. *J. H. Shapiro, B. Yurke*
- CLEO: Medical applications—Photochemical therapy and fluorescence diagnostics. *D. Kessel*
- CLEO: Laser fusion and laser-produced plasmas—Laser fusion experiments. *C. Yamanka, N. G. Kovalsky*

afternoon

- IQEC: Nonlinear optics and physics of sources poster session. *F. Duan*
- CLEO-IQEC: Joint session on clusters and materials. *C. A. Langhoff*

- IQEC: Optical interactions with solids and liquids—Quantum wells. *L. A. Kolodziejski*

- IQEC: Optical interactions with solids and liquids—Symposium on ultrafast phenomena. *M. C. Nuss, I. N. Duling*

- IQEC: Laser spectroscopy and physics—Novel physics with lasers. *A. D. Langendijk, D. Z. Anderson*

- CLEO: Medical applications—Pulsed lasers for microsurgery. *R. Srinivasan*

- IQEC: Nonlinear optics—Chaos and fluctuations. *F. Haake, M. G. Raymer*

- CLEO: Nonlinear optics and spectroscopy. *W. M. Hetherington*

- CLEO-IQEC: Joint symposium on free electron lasers. *B. Newnam, Y. Petroff*

- CLEO: 25th anniversary symposium—Laser diodes in 1962 and 2012. *N. Holonyak, R. H. Rediker, I. Hayashi, E. I. Gordon, H. Kressel, Z. I. Alferov*

- IQEC: Optical interactions with solids and liquids—Symposium on ultrafast phenomena. *W. Zinth, K. Yoshihara*

- CLEO: Laser fusion and laser-produced plasmas—Symposium on KrF lasers for fusion. *L. A. Rosocha, H. Takuma, R. H. Lehmberg*

- IQEC: Laser spectroscopy and physics—Fundamental physics. *W. L. Lichten*

Wednesday

morning

- CLEO: Atmospheric and space applications—Symposium on LIDAR in space. *M. P. McCormick, M. Endemann, D. E. Bedo*
- CLEO-IQEC: Joint symposium on free electron lasers. *G. T. Moore, T. Scharlemann*
- CLEO: Solid-state and liquid lasers—High-power solid-state lasers. *M. A. Summers*
- IQEC: Optical interactions with solids and liquids—Symposium on ultrafast phenomena. *G. Mourou, J. P. Gordon*
- CLEO: Semiconductor diode lasers—Quantum-well diode lasers. *A. Yariv*
- IQEC: Nonlinear optics—Surfaces and interfaces. *N. Winograd, B. D. Kay, G. Easley*
- CLEO-IQEC: Joint symposium on free electron lasers. *R. H. Pantell, Yu. M. Popov*
- CLEO: Nonlinear optics and spectroscopy—Phase conjugation. *M. R. H. Hutchinson*
- IQEC: Optical interactions with solids and liquids—Symposium on ultrafast phenomena. *P. B. Corkum*
- CLEO: Semiconductor diode lasers—Surface emitting laser diodes. *K. Iga, J. M. Hammer*
- IQEC: Nonlinear optics—Surface nonlinear optics. *C. Zhan*
- CLEO: Optical communications, including fiber optics and sources—Fiber systems limitations. *T. Kimura*
- IQEC: Laser spectroscopy and physics—The new quantum phase. *M. V. Berry, R. L. Whetten*

standing of nonlinear waveguide interactions. He received his BS in 1949 from Union College (Schenectady, New York), his MS in 1951 from Rensselaer Polytechnic Institute (Troy, New York), and his doctorate in electrical engineering in 1954 from MIT. He then joined the MIT faculty, becoming Elihu Thompson Professor of Electrical Engineering in 1973. Haus made the first measurement of quantum noise in a laser oscillator with Charles Freed (MIT Lincoln Labs) in 1965. He developed an analytic theory of passive mode locking in lasers, and in 1978 he and his students demonstrated mode locking in a semiconductor laser. His group developed the first all-optical picosecond waveguide switch in 1983. The Townes Award is donated by AT&T Bell Laboratories, and is presented in recognition of outstanding experimental work,

discovery, or invention in quantum electronics.

A joint plenary session, which will follow the awards ceremony, will feature four talks: Robert L. Byer (Stanford University) will deliver this year's R. V. Pole Memorial Lecture, "The renaissance in solid-state lasers." Steven Chu (AT&T Bell Laboratories, Holmdel, New Jersey) will speak on optical molasses, laser traps and ultracold atoms. Richard M. Osgood (Columbia University) will speak on lasers for the processing of electronic materials. Nicolaas Bloembergen (Harvard) and C. Kumar N. Patel will conclude the session with a review of The American Physical Society's Directed Energy Weapons study.

Exhibit. An extensive exhibit of laser and optoelectronic equipment, systems and services will be open to meeting



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attendees from Tuesday, 28 April, to Thursday, 30 April. OSA will operate a press room and a placement service at the convention center throughout the meeting. —MARGARET MARYNOWSKI □

afternoon

IQEC: Optical interactions with solids and liquids—Symposium on lasers in chemistry and biology. *Y. Lee, C. B. Harris, W. Zinth, G. A. Kenney-Wallace, R. A. Mathies, H.-L. Dai, R. M. Hochstrasser*

CLEO: Industrial applications—Spatial light modulators and applications. *H. K. Liu, R. A. Sprague*

CLEO: Optical communications, including fiber optics and sources—Lightwave systems and components. *Y. Iwamoto, N. K. Cheung*

IQEC: Laser spectroscopy and physics—Laser cooling and trapping of neutral atoms. *J. Dalibard, V. I. Balykin, V. P. Chebotayev*

CLEO: Nonlinear optics and spectroscopy—Raman beam cleanup. *A. Flusberg*

IQEC: Nonlinear optics in fibers. *H. G. Winful*

CLEO: Optical communications, including fiber optics and sources—Optical waveguides. *R. C. Allerness*

CLEO: Solid-state and liquid lasers—Diode-pumped solid-state lasers. *P. S. Cross, D. N. Payne*

Thursday

morning

CLEO: Nonlinear optics and spectroscopy—Novel nonlinear materials. *C. Chen*

CLEO: Gas lasers—Picosecond excimer lasers. *F. P. Schafer*

IQEC: Optical interactions with solids and liquids—Symposium on exciton physics. *R. S. Knox, J. E. Zucker, M. D. Sturge, D. A. B. Miller, A. V. Nurmikko, M. D. Fayer*

CLEO: Laser applications in microelectronics—Laser diagnostics. *G. Selwyn*

CLEO: Optical communications, including fiber optics and sources—Sources for coherent communications. *T. Ikegami*

IQEC: Laser spectroscopy and physics—Physics of single particles. *A. E. Kaplan, P. E. Toschek, J. C. Berquist*

CLEO: Optical materials—Material characterization and crystal growth. *R. A. Brown*

CLEO: Nonlinear optics and spectroscopy—Ultrafast-photoreactive and nonlinear materials. *A. L. Smirl*

IQEC: Nonlinear optics—Chaos and optical bistability. *M. LeBerre*

CLEO: Laser applications in microelectronics—Laser-induced optical and thermal effects. *F. W. Ostermayer, S. D. Allen*

CLEO: Industrial applications—Combustions diagnostics. *R. P. Lucht*

afternoon

IQEC: Nonlinear optics. *R. K. Chang*

CLEO: Solid-state and liquid lasers—Infrared solid-state lasers. *H. P. Weber*

IQEC: Optical interactions with solids and liquids—Symposium on exciton photons. *R. Ulbrich, D. Frohlich, L. Schultheis*

IQEC: Laser spectroscopy and physics—New techniques in laser spectroscopy. *F. Shimizu, T. W. Mossberg*

CLEO: Ultrafast optics and electronics. *U. Osterberg*

IQEC: Nonlinear optics in liquid crystals. *E. Sanpamato, B. Y. A. Zeldovich*

CLEO: Solid-state and liquid lasers—Tunable solid-state lasers. *F. Allario*

CLEO: Laser applications in microelectronics—Laser-patterning technology. *M. C. Gower*

CLEO: Laser applications in microelectronics—Compound semiconductor chemistry. *S. Bedair, J. T. Cheung*

Friday

morning

CLEO: Industrial applications—Fiber optic sensors and components. *T. G. Giallorenzi*

IQEC: Laser spectroscopy and physics—Spectroscopy in external effects. *D. Kleppner, K. Welge*

CLEO: Lasers in chemistry—Applications of multiphoton processes. *J. P. Reilly*

IQEC: Physics of sources—Nonlinear processes. *R. W. Falcone, T. Gallagher, P. Bucksbaum*

CLEO: Semiconductor diode lasers—Externally stabilized laser diode array. *G. R. Hadley*

IQEC: Laser spectroscopy and physics—New techniques in laser spectroscopy. *J. Mlynec, M. Ducloy*

CLEO: Optical signal processing, switching, storage and bistability—Symposium on photonic switching. *P. W. Smith, H. S. Hinton, M. Sakaguchi*

IQEC: Optical interactions with solids and liquids—Nonlinear optics in semiconductors. *S. Y. Yuen*

CLEO: Industrial applications—Optical metrology. *I. Yamaguchi, B. Merry*

IQEC: Physics of sources—Multiquantum processes. *T. S. Luk, K. C. Kulander*

CLEO: Optical materials—Optical damage. *I. M. Thomas*

afternoon

IQEC: Physics of sources—Chemical lasers. *S. Davis*

CLEO: Optical signal processing, switching, storage and bistability—Quantum-well modulators and switches. *M. Yamanishi*

IQEC: Physics of sources—Rydberg states. *P. A. Zoller, C. Stroud*

IQEC: Laser spectroscopy and physics—Fundamental chemical physics. *A. L. Gallagher, P. D. Kleiber, C. D. Cantrell*

CLEO: Optical signal processing, switching, storage and bistability—Optical logic and bistability. *S. D. Smith*

CLEO: Ultrafast optics and electronics—Ultrafast optoelectronic sampling. *D. M. Bloom*

IQEC: Laser spectroscopy and physics—Transient-coherent spectroscopy. *E. L. Hahn, S. R. Hartmann, R. Tycko*

CLEO: Solid-state and liquid lasers—Infrared solid-state lasers. *O. Svelto*

CLEO: Optical signal processing, switching, storage and bistability. *R. A. Athale, C. N. Kurtz*