

CLEO-QELS TO BE HELD IN BALTIMORE

By combining the QELS emphasis on basic science with the CLEO emphasis on applied science, meeting planners hope to create a more comprehensive conference.

This year's Conference on Lasers and Electro-Optics will take place at the Baltimore Convention Center and the Hyatt Regency, Baltimore, from 24 until 28 March. OSA and the Lasers and Electro-Optics Society of IEEE are sponsoring the meeting, in cooperation with the Quantum Electronics Division of the European Physical Society and the Japanese Quantum Electronics Joint Group. This year, CLEO will be held jointly with the first Quantum Electronics and Lasers Science Conference, which is sponsored by OSA, LEOS and APS. On-site registration for CLEO-QELS will be held in the convention center, at the following times: Sunday, 23 April, 11 am-8 pm; Monday, 7:30 am-5 pm; Tuesday, Wednesday and Thursday 8 am-4 pm; and Friday, 8 am-2 pm.

In the past, CLEO, which is a relatively applications-oriented conference, has been held cooperatively with the more basic science-oriented International Quantum Electronics Conference whenever the latter event took place in the US. But when IQEC was held overseas, CLEO had no basic science-oriented partner. In the future the QELS conference will play this role whenever IQEC is held in a foreign country. The cooperative format will ensure interaction between applications specialists and research specialists at every CLEO. According to CLEO program co-chair William Krupke, the joint format will better meet the needs of the laser science and optoelectronics community, in which there is a broad overlap between basic research and applications development. The conferences will include six joint CLEO-QELS symposia, in addition to the opening joint

plenary session. The joint symposia will cover topics of particularly intense interest to the laser-optoelectronics community: ultra-fast phenomena in condensed phases, ultra-fast optoelectronics, semiconductor spectroscopy, high-field effects due to laser irradiation, free-electron lasers, and nonlinear optics in quantum-confined structures. This last area is particularly exciting, because micro-fabrication techniques are beginning to allow creation of "quantum wires" and "quantum dots," which constrain electrons to quantum wells of one and three dimensions, respectively.

Awards and honors

At the awards ceremony, held during the Monday plenary session, Daniel J. Bradley (Trinity College, Dublin) will receive OSA's Charles Hard Townes Award, which is given annually in recognition of work in quan-

Daniel J. Bradley



tum electronics. Bradley is being recognized for "pioneering contributions to the fields of nonlinear optics, the physics of dye lasers, and the generation and detection of ultra-short light pulses." At the same ceremony, LEOS will present its Quantum Electronics Award, which is given annually to an individual or group for technical contributions to quantum electronics, in fundamentals, applications or both. LEOS will also present its travelling lectureships and will give certificates to the new society fellows.

Bradley was one of the pioneers in the production and measurement of ultra-short optical pulses. In 1969 he developed the technique of passively mode-locking dye lasers using a saturable absorber. Because mode-locked lasers concentrate all their energy into very short time periods, they are useful for applications that require a high-powered light source, such as inflicting radiation damage to materials or stimulating nonlinear optical phenomena.

As shorter and shorter pulses were produced, the indirect methods of measuring them proved inadequate. In 1977 Bradley invented an ultra-fast "streak camera" which, within three years, achieved sub-picosecond resolution. The camera was capable of recording mode-locked laser pulses, giving the correct, time-resolved pulse shape.

Bradley received his BSc in 1957 and his PhD in optical physics in 1961, both from the University of London. He was head of the physics department at Queen's University, Belfast, from 1966 to 1973, and from 1973 to 1980 was a professor of optics



and head of the physics department at Imperial College, London. Since 1981 he has been a professor of optical electronics at Trinity College, University of Dublin.

Technical exhibit and services

More than 280 companies will be represented at this year's CLEO-QELS equipment exhibit, which is being organized by OSA. Meeting

organizers have scheduled a special break in the program on Wednesday from 10 am to noon, to enable attendants to explore the technical exhibition without missing any of the sessions. The exhibit hall will be open Tuesday and Wednesday from 10 am to 6 pm, and Thursday from 10 am to 4:30 pm.

OSA is also providing an employment center, where candidates can

file resumes and schedule interviews with potential employers. The employment center will be open Monday through Thursday from 8:30 am to 5 pm, and Friday from 8:30 am to 4 pm.

OSA will staff a pressroom at the Convention Center, open Sunday from 6 pm to 8 pm, Monday through Thursday from 8 am to 5:30 pm, and Friday from 8 am to 4 pm.

Sessions and Invited Speakers

Monday

morning

QELS: MAA, Inorganic Nonlinear Materials. *Chen, Youngdale; Hoffman, Meyer, Bartoli, Engelhardt, Niles, Hochst.*

CLEO: MA, Infrared Detectors and Optics. *Kinch; Veldkamp, Swanson.*

CLEO: MB, Progress in Inertial Confinement Fusion. *Storm, Yamanaka, Nishihara, Tanaka, Norimatsu, Nakai.*

CLEO: MC, Tunable Lasers: 1. *Moulton.*

CLEO: MD, Nonlinear Phase Conjugation. *Kulagin, Pasmanik, Shilov.*

QELS: MBB, Nonlinearities in Layered Semiconductors. *Steel, Bhattacharya, Remillard, Wang, Webb, Pamulapati, Oh; Tai, Fischer, Slusher, Cho, Mysyrowicz.*

CLEO: ME, Waveguide Optics. *West, Whitaker.*

QELS: MCC, Collisions and Half Collisions in Laser Fields. *Glowina, Misewich, Sorokin; Julien; Thomas, Lavery, Stokes.*

QELS: MDD, Symposium on Nonlinear Optical Polymers. *Bredas; Eich, Reck, Twieg, Looser, Sen, Bjorklund, Yoon, Swalen; Marks, Wong; Kajzar; Samoc, Swiatkiewicz, Prasad.*

CLEO: MF, Infrared Focal Planes. *Forrest; Vural, Blessinger, Chen, Bailey, Wright.*

CLEO: MG, Gas Lasers and Beam Scattering for ICF. *Obenschain.*

CLEO: MH, Tunable Lasers: 2. *Muller, Guyer, Hamilton, Lowenthal, Raymond, Smith.*

QELS: MEE, Virtual Excitations in Semiconductors. *Hulin, Joffre, Chambaret, Migus, Antonetti, Combescotti; Knox; Zimmermann.*

CLEO: MJ, Quantum Well and Heterostructure Devices. *Williamson.*

QELS: MFF, Half Collisions in Small Molecules. *Helm, Lembo, Cosby, Huestis; Nayfeh.*

afternoon

CLEO-QELS: JA, Joint Plenary Session and Awards Ceremony. *Bradley, Siegman; Benton; Wineland, Bergquist, Bollinger, Itano, Gilbert, Hulet; Pinzuk; Anderson.*

Tuesday

morning

CLEO: TuB, Optical Components. *Allen; Iga.*

CLEO: TuC, Laser Angioplasty. *Bonner.*

CLEO: TuD, InGaAsP/InP Lasers. *Kitamura.*

QELS: TuBB, Ultrafast Processes in Chemistry and Biology. *Eisenthal; Elsaesser, Kaiser, Zinth.*

QELS: TuCC, Trapping and Cooling: 1. *DeVoe, Hoffnagle, Reyna, Brewer; Pritchard, Helmerson, Xiao, Sun.*

CLEO-QELS: JB, Joint Symposium on High Field Effects: 1. *Harris, Barty, King, Yin, Hahn, Field, Young; Joshi.*

CLEO: TuE, Mid Infrared Lasers: 1. *Kintz.*

CLEO: TuF, Optical Switching. *Oudar, Kuszelewicz, Azoulay.*

CLEO: TuH, Ophthalmology. *Puliafito.*

CLEO: TuI, Photoelectric Nonlinear Optics: 1. *Yeh.*

QELS: TuDD, Nonlinear Optics of Surfaces and Microparticles. *Zhu, Rasing, Shen.*

QELS: TuEE, Trapping and Cooling: 2. Wang, Cai, Cheng, Liu, Luo.
CLEO-QELS: JC, Joint Symposium on High Field Effects: 2. Freeman; Corkum, Burnett, Brunel; Bucksbaum, Zavriyev, Schumacher.

afternoon

CLEO: TuL, Sensing Techniques. Kychakoff.
CLEO: TuM, Atmospheric Laser Remote Sensing: 1. Stefanutti, del Guasta, Morandi.
CLEO: TuN, Tissue Ablation and Biophotonics. Weber, Frenz, Zweig, Romano; Inaba.
CLEO: TuO, Photorefractive Nonlinear Optics: 2. Fischer, Segev, Weiss.
QELS: TuHH, Sensitive Detection and Discrimination. Cannon, Loo, Bushaw, Janik.
QELS: TuL, Gas Phase Collisional Processes. Flynn.
CLEO-QELS: JD, Joint Symposium on High Field Effects: 3. Eberly, Su, Javanainen; Falcone, Murnane, Kapteyn.
QELS: TuJJ, Semiconductor and Quantum Well Lasers. Koch.
CLEO: TuQ, Imaging Applications. Sirat; Penney.
CLEO: TuR, Tissue Characterization. Wilson.
QELS: TuLL, Quantum Interference and Dressed State Phenomena. Lezama, Zhu, Morin, Mossberg, Lewenstein; Harris.
CLEO: TuT, High Power Glass Lasers. Mak.

evening

CLEO: TuU, Prominent Laser/Electro-Optic Techniques. Mollenauer, Smith; Gaasterland; Kino; Tanguay.

Wednesday

morning

CLEO: WA, Nonlinearities in Semiconductors and Clusters. Sipe, Driel.
CLEO: WB, Nonlinear Laser Spectroscopy. Prokhorov, Smirnov.
QELS: WAA, Carrier Dynamics and Transport in Quantum Well Structures. Preston, Wolfe, Smith, Yoon, Lin, Wake, Klem, Morkoc.
QELS: WBB, Photorefractive Materials. Valley; Glass.
CLEO-QELS: JE, Joint Symposium on Ultrafast Processes in the Condensed Phase. Hochstrasser; Kohler, Joly, Nelson; Warren.
CLEO: WE, Optical Fiber Based Instrumentation. Lindsay.

afternoon

QELS: WCC, Spectroscopy of Large Molecules and van der Waals Clusters. Pratt; Schlag.
QELS: WFF, Fundamental Measurements. Hunter, Krause, Murthy, Li; Wieman, Noecker, Masterson; Lee, Sternberg, Flynn, Bjerrre, Riis, Poulsen, Hall.
CLEO: WG, Semiconductor Laser Gain Dynamics. Petermann.
CLEO: WH, Resonators for Solid State Lasers. De Silvestri, Magni, Svelto, Laporta.
CLEO-QELS: JF, Joint Symposium on Nonlinear Optics in Quantum Confined Structures: 1. Chemla, Bar-Joseph, Wegener, Kuo, Chang; Kost, Garmire; Wilson, Spitzer, Bonner, Pfeiffer, Glass.
CLEO: WI, Ultrafast Pulse Characterization Shaping, and Harmonic Generation. Bor, Szabo, Muller; Szabo, Bor.
CLEO: WJ, Basic Laser Propagation Phenomena. Tatarskii.
CLEO: WK, Surface Characterization and Imaging. Ferrell, Reddick, Sharp, Warmack; Mattsson.
QELS: WGG, Spectroscopy of Transient Species. Hudgens, Johnson, Tsai; Cool; Rahn, Farrow, Sitz, Palmer, Rosasco.
CLEO: WL, Semiconductor Sources and Amplifiers for Communications. Olsson.
CLEO-QELS: JG, Joint Symposium on Nonlinear Optics in Quantum Confined Structures: 2. Miller; Koch.
CLEO: WN, New Laser Technology for Space and Atmospheric Applications. Maynard.
CLEO: WO, High Speed Electro-Optic Devices. Krokell, Grischkowsky, Ketchen.

Thursday

morning

QELS: ThAA, Clusters: 1. Moskovits, Kirkwood, Haslett; Freiser.
QELS: ThBB, Nonequilibrium Carriers in Semiconductors III-V. Goodnick.

CLEO: ThB, Nonlinear Optics: 1. Nunzi, Charra.
CLEO: ThC, Short Wavelength Lasers. Sasaki, Kurosawa, Fujiwara, Yoshida, Kato; Sauerbrey, Kubodera, Warwar, Millar, Wisoff.
CLEO: ThD, Laser Photoablation. Dreyfus, von Gurfeld.
CLEO: ThE, Combustion and Flow Diagnostics. Alden; Chang.
QELS: ThDD, Clusters: 2. Ray, Levinger, Papanikolas, Lineberger.
CLEO: ThH, Nonlinear Optics: 2. Zhang, Kinoshita, Sasaki, Goto, Nakayama.
QELS: ThEE, Nonlinear Effects in Low Dimensional Materials. Wang, Herron, Suna; Sinclair, McBranch, Heeger; Peyghambarian.
QELS: ThFF, Nonlinear Optics: Dynamics and Stability. Lugiatto, Narducci.

afternoon

QELS: ThGG, Fundamental Optical Processes. Zhu, Lezama, Mossberg.
QELS: ThHH, High Precision Measurements in Molecules. Pratt, P. Dehmer, J. Dehmer, Tomkins, O'Halloran; Field.
QELS: ThJJ, Solid State Lasers: 1. Hanna; Krupke; Byer.
QELS: ThKK, Solid State Lasers: 2. Payne, Chase, Smith, Lee.
CLEO-QELS: JH, Joint Symposium on Ultrafast Optoelectronics: 1. Auston; Grischkowsky, Fittinger.
CLEO: ThO, Optical Processing and Data Storage. Kyuma, Ohta, Nakayama.
QELS: ThLL, New Processes for Laser Cooling. Lett, Westbrook, Watts, Rolston, Tanner, Phillips, Gould, Metcalf; Weiss, Ungar, Shevry, Riis, Chu; Aspect, Arimondo, Kaiser, Vansteenkiste, Dalibard, Salomon, Cohen-Tannoudji.
CLEO: ThQ, New Nonlinear Optical Materials. Chen, Jiang, Wu, You, Lin, Wu.
QELS: ThMM, X-Ray Lasers. London.
CLEO-QELS: JI, Joint Symposium on Ultrafast Optoelectronics: 2. Nuss, Mankiewich, Howard, Harvey, Brandle, Straughn, Smith.
QELS: ThNN, Metal Surfaces and Novel Microstructures. Schoenlein, Fujimoto, Eesley, Capehart.
CLEO: ThT, Atmospheric Laser Remote Sensing: 2. Davidson, Henderson, Kavaya, Huffaker.

Friday

morning

QELS: FAA, Precise Measurements in Rydberg Systems. Haroche; Kash, Welch, Lu, Hsu, Kleppner; Eyley.
QELS: FBB, Tunneling and Localization in Microstructures. Shah; Mendez; Young.
CLEO: FB, High Speed Devices for Optical Communication. Imai.
CLEO: FC, Surface Emitting Lasers: 1. Koyama, Kinoshita, Iga.
QELS: FCC, Optical Fiber Nonlinearities. Li, Fermann.
CLEO-QELS: JJ, Joint Symposium on Free Electron Lasers: 1. Benson, Madey; Prosnitz.
QELS: FDD, Lasers: Small or Fast. Vahala; De Martini, Jacobovitz, Marrocco, Mataloni, Murra; Fork.
CLEO: FE, Optical Parametric Oscillators. Tang, Bosenberg, Pelouch.
CLEO: FG, Devices for High Capacity Multichannel Communication Systems. Kawachi.
CLEO: FH, Surface Emitting Lasers: 2. Palfrey, Carlson, Amantea, Evans, Hammer, Lurie.
QELS: FEE, Optical Studies of High T_c Superconductors. Aspnes, Kelly; Klein, Cooper, Slakey, Bukowski, Rice, Ginsberg; Orenstein.

afternoon

CLEO: FK, Nonlinear Frequency Generation. Ebrahimzadeh, Dunn.
CLEO: FM, Laser Amplifiers and Applications. Zah, Way.
CLEO-QELS: JL, Joint Symposium on Ultrafast Spectroscopy of Semiconductors. Shank, Becker, Fragnito, Bigot, Cruz.
QELS: FFF, Photodissociation. Crim; Chandler, Thoman, Sitz, Janssen, Stolte, Parker.
CLEO: FN, Mechanisms and Optical Diagnostics of Laser Processing. Coleman, Eden.
CLEO-QELS: JM, Joint Symposium on Free Electron Lasers: 3. Orzechowski; Warren.
QELS: FGG, Squeezed States and Quantum Optics. Caves; Kimble.
QELS: FHH, Nonlinear Properties of Polymers. Greene, Schmitt-Rink; Heritage, Blanchard, von Lehmen, Baker, Etemad.
CLEO: FP, Lightwave Communication Systems. Grangier, Slusher, Yurke, La Porta.
CLEO: FQ, Additive Pulse Mode Locking. Sibbett.