

Founder's Column	2
Research Update	3
Newsbriefs	3
Staff Profiles	4
Honors and Awards	6

Happy Anniversary to BLI

The Beckman Laser Institute (BLI) celebrated its 20th anniversary on November 9, 2006. At an evening reception, friends and employees of the Institute mingled with donors and many former BLI employees, some of whom came from as far away as Israel and Norway.

Presentations were given by UCI Chancellor Dr. Michael Drake; Patricia Beckman, the daughter of Dr. Arnold O. Beckman; BLI Founding Director, Dr. Michael Berns; and BLI Director Dr. Bruce Tromberg.

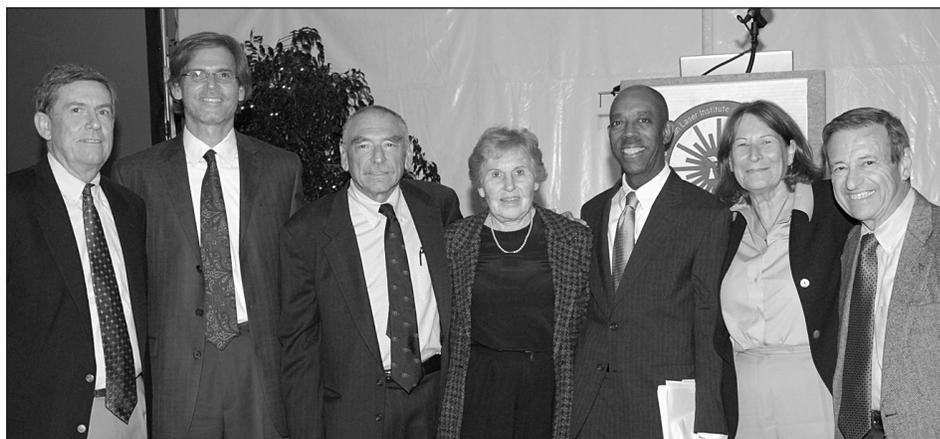
Dr. Drake spoke about the achievements of the Beckman Laser Institute and of his own benefit from the thoughtful philanthropy of Dr. and Mrs. Arnold Beckman. He aptly described the Institute as a model of interdisciplinary links between physical science, chemistry, computer sciences, biology and medicine. Holding BLI up as a model for the future, he said it "continues to shine, casting a lasting legacy of scholarship and innovation at the University of California, Irvine."

The warm, appreciative tone of the evening continued as Dr. Berns thanked the many people who traveled from all over the world to share the special occasion at BLI. He talked about his appreciation for Arnold and Mabel Beckman and the key people who helped make the model of the Institute a reality. Then Dr. Berns told the story of the evolution of the Beckman Laser Institute through the generosity of Dr. Beckman.

Many in attendance learned of BLI's roots when Pat Beckman talked about the early life of her dad, Dr. Arnold O. Beckman. She described the instruments and businesses he developed throughout his life, explaining that in fact both of her

parents were interested in establishing cutting edge research centers. Dr. Beckman also had an interest in lasers and the possibilities they posed. He was intrigued by the collaboration of basic research and clinical applications, and the model that Dr. Berns posed to Dr. Beckman sparked enough interest to gain the funds necessary to build the Beckman Laser Institute.

Dr. Tromberg shared his "State of the Art" address. He illustrated the full scope of BLI as a multidisciplinary research,



Pictured from left to right are Michael Gottfredson, Bruce Tromberg, Michael Berns, Patricia Beckman, Michael Drake, Susan Bryant, Thomas Cesario.

teaching, clinical and technology-transfer facility with its specialty in optics in Biology and Medicine. Stressing the importance of the BLI, Inc. non-profit and the Beckman Foundation, Dr. Tromberg explained the ways in which both help move the Institute forward. He remains impressed and constantly motivated by the vision that Drs. Berns and Beckman had in the formation of the Institute and took this opportunity to thank all of BLI's current and former employees for always striving to expand and excel.

Following the speakers, Dr. Tromberg presented eleven awards to BLI employees and former employees who have contributed significantly to the growth of the Institute. Engraved crystal statuettes were given to Michael Berns for exemplary leadership and vision; Stuart Nelson for exemplary leadership and service; Yona Tadir, Sol Kimel, Lars Svaasand, Leacky Liaw, Marie Wilson, Elaine Kato, Chung-Ho Sun, Jeff Andrews and Beverly Hyndman for their exceptional dedication and service.

Guests enjoyed hors d'oeuvres and the music of Rich Cozzi and David

Goldberg, were provided tours, and had the opportunity to view research and historical posters of the Beckman Laser Institute. Many thanks are to be given to the committee members for dedicating many hours of their time in planning this special event: Jeff Andrews, Jeff Beckwith, Debbie Birnie, Devi Callian, Junko Cora, Valerie Croft, Richard Diaz, Jennifer Dorwachter, Christine Fantone, Jenni Frank, Midge Garrison, Debbi Gordon, Prajay Kapadia, Kristen Kelly, Erin Miller and Diane Wilson. ■

Is There Still Plenty of NIH Research Money Out There?

by Michael W. Berns, Ph.D.,
Co-Founder

Yes! You just have to be patient and know how to find it. The present woes of getting funded from the National Institutes of Health (NIH), which is still the overwhelmingly major source of funds for biomedical research in the U.S., reminds me of a period back in the 1970s or '80s when some NIH institutes were only funding the 10-15 percentile and scores in the 130's were going un-funded (100 being a perfect score out of 500).

Yet our research still got funded. Why was that? Well, the philosophy we used was very simple. Someone was going to get funded so it might as well be us. We may have resubmitted a grant two or even three times, or we may have requested a re-evaluation by another study section. But the most important thing was interacting with the NIH staff. Submitting "blind" was almost always going to fail. Talking with the study section chairman and/or the NIH administrator assigned to the grant was crucial, both before and after submission. The feeling was that every little bit helped, especially when it came down to a grant that was just on the borderline of the "pay-line." Once a grant was sent over to its assigned institute, the next crucial step was to talk with the program director (the person assigned to oversee the grant if it is funded). This person has the ability to recommend one grant over another if the grants' priority scores are very close to the pay-line. The program director is a very important person in the process because he/she prepares the final recommendations to the "higher-ups," the people who make the final decision. This person can also be very helpful to you in terms of making recommendations for a revised proposal.

But even after following all of the above, we are in tough times right now with respect to NIH grants. While funding remains the utmost goal, there is an additional important benefit in getting a grant

from NIH, especially the coveted R01 grant (grants given to individual investigator-submitted proposals). Obtaining an NIH grant (especially the R01) is still the "gold standard" for faculty evaluation and promotion at every top major research university. If this gold standard is compromised, quality is inevitably eroded.

But BLI is a very unique place that thrives on collaboration within as well as outside. So for BLI, there are unique grant-getting opportunities. The NIH has "program projects" that are specifically designed for our kind of institute. I am currently involved in one at UC San Diego which has just been funded, and there is

no reason why one of the best biomedical photonics programs in the country (BLI) can't snag one. And then, of course, there are training grants which cover the salaries of graduate students and postdoctoral fellows. BLI is well positioned to get one in biomedical optics. As I have said many times throughout my career, "If you don't try, you won't get." It's like fishing: if you don't throw the line in the water, you aren't going to catch a fish. Or as Yogi Berra said, "If you don't swing the bat, you ain't gonna get a hit." I saw him play many times as a kid in the '50s & '60s. He was famous for swinging at just about anything – and he got a lot of hits and home runs. ■

NTROI Retreat Hosted By BLI

The Fourth Annual NTROI (Network for Translational Research: Optical Imaging) Retreat was held June 28-30, 2007, at the Hyatt Regency Newport Beach, Newport Beach, CA. The primary aim of the NTROI Retreat is to bring together basic scientists and clinicians from academics and industry to accelerate development and standardization of new methods for breast cancer detection. Attendees represented an international mix of academia, government agencies and industry.

There were 100 attendees at this year's retreat from 8 states and 3 countries. Of the attendees, 33 were students, 10 were from industry and one represented the National Cancer Institute. Attendees represented 14 academic and non-profit centers.

The meeting began Thursday evening with a reception. After dinner and opening remarks, associate members Nick Mackinnon, British Columbia Cancer Research Centre, and Christian Shultz, Siemens Medical Solutions, USA, Inc., presented talks. Friday's 19 scientific talks were divided into three topics: Standardization, Visualization and Data Analysis; Instrumentation; and Clinical Translation. Friday, the Industry Working Group met during lunch, and

(NTROI continued on p. 4)



The NTROI conference attendees take a break for a group photo.

Techniques for Early Detection of Head and Neck Cancer

BLI Dentistry Director Petra Wilder-Smith, D.D.S., Ph.D., presented early cancer detection techniques that are under investigation in her laboratory at the 18th Annual Fanconi Anemia Scientific Symposium held in Bethesda, MD, on October 19-22, 2006. The goal of her research is to develop a non-invasive approach for detecting cancer precursors and oral cancer at the earliest stage possible and to enable regular screening of high-risk patients.

Oral cancer has one of the worst survival rates of all cancers because early detection is difficult. Current diagnostic techniques require surgical biopsy and often cannot identify early cancerous

changes. If detected early, however, oral cancer has a better survival rate than most cancers. Clinicians desperately need new tools for early detection. Several approaches are currently under investigation.

Dr. Wilder-Smith discussed three new methods that show promise:

- Optical coherence tomography (OCT) combined with optical Doppler tomography (ODT) can image below the surface of the oral tissues and can show structures at a level of detail resembling that obtained under a microscope.
- Under certain types of laser light, precancerous and cancerous tissues fluoresce (glow) differently than

healthy tissues. Pre-treatment of mouth tissues with chemical agents called photosensitizers can enhance this effect. Very early precancerous changes invisible to the naked eye are detected using fluorescence techniques.

- Some types of laser microscopes can be connected to a probe that allows direct imaging of surface and subsurface tissues. This technique permits very early and accurate diagnosis of pathologies in tissues such as the lining of the mouth.

These new techniques can be combined to achieve effective and rapid screening, diagnosis, monitoring, and delineation of cancer. ■

Newsbriefs

BOOK PUBLICATION

This year, Academic Press/Elsevier has published in its prestigious Methods in Cell Biology series, *Laser Manipulation of Cells and Tissue*, edited by BLI co-founder Michael W. Berns and Professor Karl Otto Greulich of the Institute for Aging Research, Jena, Germany. This 750 page text is comprised of 27 chapters by experts from the U.S., Japan, Germany, Sweden, Austria, Israel, Australia, India and Czechoslovakia. Many, if not most of the 27 chapters are work that emanated from Prof. Berns' long career of almost 40 years. Also in this book is a verbatim reproduction of Prof. Berns' landmark paper published in Science magazine in 1981 that basically laid out the vision for laser cell surgery. This book emphasizes the past and current impact of Professor Berns' work, especially in shaping the field of laser microbeam irradiation, and deals with such subjects as laser scissors (ablation), laser tweezers, and laser catapulting.

VBF CONFERENCE IN NOVEMBER

The Beckman Laser Institute (BLI) and the Vascular Birthmarks Foundation (VBF)

are co-sponsoring the 2007 Port Wine Stain and Vascular Birthmarks Conference on Friday and Saturday, November 2 and 3, 2007. This is a medical conference for families who are affected by these disorders. There will be a welcome reception for the families on Friday night at the The Island Hotel in Newport Beach. Breakout sessions will be available on Friday night for patients and their families. On Saturday, several experts in the field of photomedicine and the treatment of vascular lesions will be giving presentations for individuals and families who suffer from these congenital birthmarks. BLI's Medical Director, Dr. J. Stuart Nelson will present on the current trends in the diagnosis and treatment of port wine stains. A clinic will be held at BLI on Saturday afternoon for individuals and families to see physicians to diagnose and discuss a course of treatment for affected individuals.

This is the second conference to be held on the West Coast and the BLI physicians are delighted to have the opportunity to provide this service to the many people who otherwise would not know about the excellent program available to them at the BLI. For more information and to register for the conference, please visit the

Vascular Birthmarks Foundation website at www.birthmark.org. To register by phone with a credit card, please contact Paige Salvador, VBF Executive Director, at (856) 234-2126. If you have any questions, please e-mail Paige at BASPASTS@cs.com.

CLINIC PROMOTION

Kerry Millington, R.N., former Clinical Nursing Supervisor of the Beckman Laser Institute Medical Clinic, has been promoted to Nurse Manager. She is now responsible for the entire administrative operation of the clinic.

PHOTONIC INCUBATOR COLLABORATIONS

The BLI Photonic Incubator is a wing that was added to the BLI building in 1998 to promote collaborative research development with industrial partners. Modulated Imaging, Inc. (MI) has recently leased an office in the Photonic Incubator wing. MI was founded in 2005 out of the BLI labs of Drs. Bruce Tromberg and Tony Durkin. David Cuccia, Chief Technology Officer of MI, is co-PI on a joint research effort with Dr. Durkin entitled "Quantitative Optical Imaging of Chronic Wounds."

(Newsbriefs continued on p. 8)

Elliot Botvinick, Assistant Professor



Dr. Elliot Botvinick

Dr. Botvinick is a former Arnold and Mabel Beckman fellow. His research focuses on the relationship between mechanical stresses on cells and molecular signaling, i.e., cellular mechanotransduction. Currently, emphasis is placed on the transduction of fluid shear stresses by endothelial cells and the transduction of mechanical stress during cell migration. Cell signaling is measured on a cell-by-cell basis using fluorescent techniques, including Fluorescence Redistribution After Photobleaching (FRAP), Förster Resonance Energy Transfer (FRET) and Total Internal Reflection Fluorescence (TIRF). Microscopes are customized to combine imaging with functional microbeams for laser ablation and laser tweezers that transfer both linear and angular momentum. Spatially modulated microbeams can constitute an array of laser tweezers that can apply known mechanical or

fluid stresses and measure elastic and viscous properties within sub regions on or within a single cell. He is currently involved in research projects on the role of the glycocalyx in the transduction fluid shear stress on vessel walls, and cell signaling in laminar flow chambers in which only a few cells experience unsteady or reverse flow as introduced by laser tweezers. Dr. Botvinick received his B.Sc.,

M.S. and Ph.D. in bioengineering from the University of California, San Diego. He has a joint appointment as assistant professor in the Department of Biomedical Engineering and Department of Surgery, Beckman Laser Institute. Elliot is currently living in Carlsbad with his wife, Elise, but will be moving to Irvine in February. He enjoys playing the piano, rock climbing and running cross country. ■

Thirty Years of Distinguished Service

When Marie Wilson first arrived at the laboratory of Beckman Laser Institute co-founder Dr. Michael Berns in February 1977, she had a B.S. in Microbiology and a M.S. in Biology from the University of Minnesota where she worked before coming to UCI. Her initial duty at Dr. Berns' lab, originally located in Steinhaus Hall, was as tissue culture supervisor. As part of the original staff when BLI was founded, Marie helped with the design of the laboratory space. When the lab was in place at BLI in 1986, Marie was the Animal Operating Room Supervisor and the assistant supervisor for the tissue culture facility as well as continuing to work on research with Dr. Berns on laser effects of various tissues using mostly photosensitizers.

While Dr. Berns was BLI Director, Marie served as the research liaison for visiting researchers and worked on such projects as the use of lasers for cardiovascular disease, laser-induced mutations, and effects of lasers (with and without photosensitizers) on blood vessels. Her most recent collaboration was with BLI Dentistry Director Petra Wilder-Smith on diagnostic imaging of oral tissues. These collaborations resulted in 37 research papers on

which Marie was a co-author. In addition to working with doctors and professors, she personally trained numerous undergraduate, graduate and postgraduate students in various aspects and techniques of research.

As Marie leaves BLI after 30 stellar years of service, she has a new M.S. degree in Library and Library Sciences. Her knowledge, expertise and "always ready to help anyone attitude" will be sorely missed by her colleagues. We wish her well as she embarks on her new career as Reference Librarian of the School of Health and Human Services at National University in San Diego. We know she will achieve as much success and respect there as she did here at BLI. ■



Marie Wilson and Dr. Michael Berns

NTROI (cont'd from p. 2)

the Executive Committee met in the evening. On Saturday morning, the Phantom Working Group met to outline priorities for the coming year. Each day left time for valuable interaction and a poster session with 22 posters presented.

This meeting was made possible with the support of the National Cancer Institute, BLI, Inc., Bayer Healthcare Pharmaceuticals, Philips Medical Systems, The Netherlands, Siemens Medical Business Development, ART Advanced Research Technologies, Inc., Hamamatsu Corporation, and the UCI Office of Research and Graduate Studies. Visit www.bli.uci.edu/ntroi/ for more info. ■

Bernard Choi, Assistant Professor

Dr. Choi's research interests include the development and application of in vivo optical imaging methods for novel therapy discovery with current collaborations in dermatology and neurobiology. He also leads research efforts on the use of chemical agents to reduce the optical scattering of biological tissue. Dr. Choi received his B.Sc. degree from Northwestern

University and his M.S.E. and Ph.D. degrees in biomedical engineering from the University of Texas at Austin. After completing an Arnold and Mabel Beckman Fellowship at BLI, he was appointed as an assistant professor in the Department of Biomedical Engineering and Department of Surgery, Beckman Laser Institute. Bernard lives in Irvine with his wife,

Vanessa, and their two children, Gaby and Gianni. When he's not rooting for the Chicago Cubs baseball team, the rest of his spare time is spent "chasing the kids." ■



Dr. Bernard Choi

Honors and Awards

BLI Director Bruce J. Tromberg, Ph.D.

Dr. Tromberg was elected a Fellow of SPIE-The International Society for Optical Engineering. Fellows are members of distinction who have made significant scientific and technical contributions in the multidisciplinary fields of optics, photonics, and imaging. They are honored for their technical achievement, for their service to the general optics community, and to SPIE in particular. More than 480 SPIE members have become Fellows since the Society's inception in 1955.

Dr. Tromberg was elected for specific achievements in the area of biomedical optics. He has made major contributions to the general field of biomedical optics including tissue optical spectroscopy, frequency-domain photon migration, non-linear microscopy, and photodynamic therapy. Dr. Tromberg has worked in many fields of biomedical optics contributing fundamental knowledge in the area of the interaction of laser radiation and tissue. He is an acknowledged leader in diagnostic techniques, including optical tomography, and other methods, such as photo migration, to analyze the effects of laser energy on tissue.

Dr. Tromberg is serving a two year term on the SPIE Board of Directors that will be completed at the end of this year.

He has been a member of the SPIE Publications Committee for a number of years and is currently editor-in-chief of SPIE's *Journal of Biomedical Optics*, serving in that role since 1999. He has chaired 10 conferences, authored 115 proceedings papers, 14 book chapters as well as 140 peer-reviewed papers, including 17 articles in SPIE journals, and holds 11 patents.

BLI Associate and Medical Director J. Stuart Nelson, M.D., Ph.D.

Dr. Nelson received the prestigious Leon Goldman Memorial Award on April 14, 2007, at the 27th annual conference of the American Society for Laser Medicine and Surgery (ASLMS). The award recognizes Dr. Nelson's many years of academic leadership and research excellence in the fields of laser surgery, photomedicine, and biomedical optics, along with his significant contributions to the clinical management of laser patients.

The esteemed Leon Goldman Memorial Award was established in 1998 to honor the many contributions of Leon Goldman, M.D., long recognized as the "Father of Laser Medicine." The recipient must be a practicing physician who has demonstrated longitudinal excellence throughout his career in clinical laser research, high-quality laser patient care, and medical laser education. The individual must also share the characteristics of honesty, high ethical standards and a

dedication to patients that were possessed by the award's namesake.

Dr. Nelson has published more than 280 scientific articles and 13 book chapters. In connection with his interdisciplinary research, Dr. Nelson holds 13 patents for biomedical devices from the Patent and Trademark Office, United States Department of Commerce. The "dynamic cooling device" methodology developed by Dr. Nelson and his colleagues at BLI has become the worldwide standard for treatment of birthmarks in infants and is now incorporated into more than 15,000 laser devices.

Since becoming a member in 1987, Dr. Nelson has served on a number of ASLMS committees and task forces. He served as President of the ASLMS in 2001-2002 and was the Program Chair of the Joint International Laser Conference held in Edinburgh, Scotland, in September 2003. In April 2005, Dr. Nelson assumed the position of Editor-in-Chief of the ASLMS journal, *Lasers in Surgery and Medicine*. A guiding force behind the ASLMS research grant program where he has raised more than \$100,000 to support postdoctoral fellows and graduate students, Dr. Nelson has been a mentor to numerous young scientists, encouraging them to spearhead the development of new optical technologies for diagnostic devices and biomedical

(Honors continued on p. 6)

(cont'd from page 5)

applications that will advance the quality of care for patients.

Zhongping Chen, Ph.D.

Dr. Chen was named a new Fellow of the Optical Society of America. This prestigious honor is given to only ten percent of the OSA membership and is dedicated to members who have served with distinction in the advancement of optics. Founded in 1916, the OSA was organized to increase and spread the knowledge of optics and to promote the common interests of investigators of optical problems, designers and users of optical apparatus of all kinds. The purposes of the OSA are scientific, technical and educational, and membership totals more than 14,000 individuals from more than 80 countries.

Dr. Chen was honored specifically for his pioneering contributions to the development of functional optical coherence tomography (F-OCT), including Doppler, polarization-sensitive, phase-resolved and second-harmonic OCT. F-OCT is a non-invasive imaging modality that provides three-dimensional imaging of tissue structure and physiology with micrometer resolution. The tomographic imaging technologies developed in Dr. Chen's OCT Laboratory at BLI have various clinical applications, including diagnosis and management of cardiovascular diseases, diabetic retinopathy, and gastrointestinal, respiratory, and urogenital cancers.

Brian J. F. Wong, M.D.

In the January 2007 issue of *Orange Coast* magazine, Dr. Wong was selected as one of the Top Doctors in Otolaryngology, Head and Neck Surgery in Orange County. Physicians in the "Top Doctors" listing are chosen on an annual basis by a selection committee who reviews nominations for the Orange County Medical Association's Physicians of Excellence program. Nominees must meet at least seven criteria, including demonstrating physician leadership, involvement in physician education, and possession of unique skills within the field of nomination.

Matthew Brenner, M.D.

Dr. Brenner has been awarded a grant from the California Tobacco Related Disease Research Program (TRDRP) for "High Resolution OCT for Early Airway Cancer Detection." Funding is for 3 years and will support Dr. Brenner's efforts to develop and clinically test high resolution optical coherence tomography for more accurate detection, staging and treatment of airway cancer.

Jerry Spanier, Ph.D.

Dr. Spanier was awarded a grant from the National Science Foundation to study "Self-Optimized Monte Carlo Methods for Radiative Transport." The grant runs from July 1, 2007-June 30, 2008. This research will develop dramatically accelerated Monte Carlo algorithms and confirm the efficiency gains they achieve for radiative transport problems. These new methods will be useful in modeling the interactions of light and tissue and in other application areas in medicine and biology. When fully developed, the new techniques should make possible near real-time simulations in support of laboratory and clinical diagnoses and treatment protocols at BLI.

James M. Ridgway, M.D.

Dr. Ridgway, Resident Physician of the Department of Otolaryngology-Head and Neck Surgery, University of California Irvine Medical Center, who collaborates on research with Dr. Brian Wong and Dr. Zhongping Chen, was a winner of the Resident Research Competition for the 2007 Combined Sections Meeting of the Triological Society, held on February 14-18, 2007. Dr. Ridgway received the Shirley Baron Resident Research Award for his paper, "Imaging of the pediatric airway using optical coherence tomography."

Jessie Weber

Jessie Weber, a Ph.D. candidate in Biomedical Engineering currently doing research at BLI, was awarded a 2006-2008 fellowship from the UCI Achievement Rewards for College Scientists (ARCS) program. This particular fellowship pro-

gram is one of UCI's most distinguished. Fellows for this program are selected on the basis of their academic accomplishments and promise as well as their leadership qualities consistent with the mission of the ARCS Foundation: representing the future leaders of tomorrow's American scientific community.

Before coming to UCI, Jessie earned her B.S. in Biomedical Engineering from the University of Rochester (NY) where she studied a broad range of subjects from Geometrical Optics to Interference and Diffraction, Fluid Dynamics to Mechanics, and Modern Physics to Neurobiology. Her current research at BLI involves looking at a model of seizure in the brain. She is using light to map functional physiological dynamics and to study the origin of the optical scattering and absorption signals.

Khyati Mohanty

Khyati Mohanty, a Ph.D. student in Biomedical Engineering currently doing research at BLI was awarded the 2nd Place SPIE Educational Scholarship in Optical Science and Engineering at the 2006 Annual Meeting of SPIE's International Symposium on Biomedical Optics (BiOS).

Jun Zhang, Ph.D.

Jun Zhang, a postdoctoral fellow in Dr. Zhongping Chen's lab who is collaborating with BLI Dentistry Director Petra Wilder-Smith, was the winner of the International Association of Dental Research (IADR)/Diagnostic Systems Group (DSG)/Imaging Sciences International Student Research Travel Award for 2007 for the abstract titled, "3D Imaging of Oral Carcinogenesis with Optical Coherence Tomography." This award is presented annually to a student researcher who presents an abstract in the DSG Section during the Annual General Scientific Meeting of the IADR. The DSG Program Chair and members of the chair's committee evaluate all the abstracts sent to the DSG section. The winner is the highest scoring abstract for an oral or a poster paper presentation by a student member.

Arrivals and Departures

ARRIVALS

Youngwoo Bae has been hired as a junior specialist to work on optical Doppler tomography in Dr. J. Stuart Nelson's lab.

Jae Ho Baek, Ph.D., is a visiting assistant researcher working on non-invasive multi-modality imaging of dental hard tissues.

Mihaela Balu, Ph.D., has been hired as a postdoctoral scholar in Dr. Bruce Tromberg's lab to work on multiphoton microscopy.

Myoung Rae Cho, Ph.D., joins BLI as a visiting researcher, collaborating with Dr. Matthew Brenner and his colleagues.

Valerie Croft has been hired as the executive assistant for the BLI director after 5 years at the UC Irvine Medical Center in the Managed Care Department.

Christopher (Kit) Curtis has been hired to assist with payroll and financial duties.

Vene Garces-Chavez, Ph.D., has been hired as an Associate Specialist II. She will be working on spatially modulated microbeams in Dr. Elliot Botvinick's lab.

Suzanne Genc is a Ph.D. student in Physics who is working in Dr. Michael Berns' lab on the physical mechanism of laser ablation in living cells.

Minyong Jeon, Ph.D., joined BLI this year as an Assistant Researcher to develop a high speed swept laser for optical coherence tomography.

Hilari Kawakami-Wong has been hired as a Staff Research Associate and will oversee and manage projects in Dr. Petra



From left to right: Jae Ho Baek, Jessie Weber, Christopher (Kit) Curtis, Suzanne Genc, Valerie Croft, Craig Snider, Ryan McCaughey, Chang Soo Kim, Nivedan Tiwari (not pictured are Youngwoo Bae, Mihaela Balu and Myoung Rae Cho)

Wilder-Smith's lab as well as work on projects for MFEL Director George Peavy.

Chang Soo Kim is a Chemical Engineering graduate student working with Dr. Zhongping Chen on gold nanoparticles to enhance optical coherence tomography imaging.

Ryan McCaughey, Ph.D., was hired as a postdoctoral scholar and is working on the development of compact, low-cost rare-earth-doped fiber lasers and their applications to surgery of the face, cranial base, and ear. He is also working on fluorescence spectroscopy laser ablation applications.

Khyati Mohanty, M.S., is a Ph.D. student in Biomedical Engineering who is working in Dr. Michael Berns' lab on opto-microfluidic techniques for neuronal studies.

Samarendra Mohanty, Ph.D., is a postdoctoral fellow working in Dr. Michael Berns' lab on laser microscopy, optical micromanipulation and neuro-optoelectrophysiology.

Craig Snider has been hired at BLI as a programmer analyst to manage the Institute's website.

Nivedan Tiwari is a graduate student in Mechanical and Aerospace Engineering working in Dr. Bruce Tromberg's lab to develop an arthroscopic probe with multiphoton microscopy capabilities.

Jessie Weber is a Ph.D. student in Biomedical Engineering working in Dr. Bruce Tromberg's lab to study a model of seizure in the brain.

DEPARTURES

Cynthia Chen has left BLI to go to medical school in Pomona at Western University.

Salvatore Cito leaves BLI to work on his Ph.D. at the Universitat Rovira i Virgili in Tarragona, Spain.

Debbi Gordon has left BLI to pursue a full time hospice career.

Shwayta Kukreti, Ph.D., is going to medical school at the University of Illinois at Urbana-Champaign to complete her M.D/ Ph.D. program.

Richard Kwong is attending medical school at UC Irvine.

Laurent Lamard, a visiting researcher working with Dentistry Director Petra Wilder-Smith, has left BLI for the University of Notre Dame de la Paix in Namur, Belgium, to work on his Ph.D.

Tore Lindmo, Ph.D., has returned to the National Institute of Technology in Trondheim, Norway.

Justin Lotfi is going to medical school at UC Davis.

Julia Lyubovitsky, a postdoctoral fellow in Dr. Bruce Tromberg's lab, has accepted a faculty position with the Department of Bioengineering at UC Riverside.

Natasha Shah has left BLI to work at HealthIQ in Orange, CA.

Sara Siavoshi is going to medical school in Pomona at Western University.

Shuo Tang, a postdoctoral fellow in Dr. Bruce Tromberg's lab, has accepted a faculty position with the Department of Electrical and Computer Engineering at the University of British Columbia.



From left to right: Vene Garces-Chavez, Hilari Kawakami-Wong, Samarendra Mohanty, Khyati Mohanty and Minyong Jeon.

(cont'd from page 3)

In addition, OCT Medical Imaging, Inc., has licensed technology developed in co-founder Zhongping Chen's lab at BLI. Optical coherence technology (OCT) uses a powerful light beam that shines 2-3 millimeters into most body tissues. Sophisticated computer analysis of the reflected light creates images that are detailed enough to reveal tiny cancers or tissue structures that occur near the surface of the skin, eye, gastrointestinal tract or larynx. The light is carried on fiberoptic probes small enough to be inserted through endoscopic "keyhole" surgical devices into the lungs, veins and arteries without requiring a hospital stay. OCT Medical Imaging, Inc. was created to turn the technology into commercially viable products.

SUCCESSFUL DEFENSE

Shwayta Kukreti, who has been doing research with Biomedical Engineering Professor and BLI researcher Enrico Gratton and BLI Director Bruce Tromberg while she was a Ph.D. candidate

at the University of Illinois, successfully defended her Ph.D. dissertation, "Intrinsic spectroscopic tumor markers revealed by double-differential analysis of near-infrared absorption spectra," on May 29, 2007, at the University of Illinois at Urbana-Champaign. Shwayta was at BLI from September 2005 to July 2007 compiling measurements of breast tumors which were a significant part of her dissertation. She returned to the University of Illinois in August to complete the M.D. portion of her M.D./Ph.D. program.

VISITING SCIENTIST ON SABBATICAL

Tore Lindmo, Professor of Medical Technology, Department of Physics, Norwegian University of Science and Technology, Trondheim, Norway, completed a 7 month sabbatical at the Institute. During his stay from December 2006 through June 2007, Dr. Lindmo had multiple collaborations with Dr. Tatiana Krasieva studying second harmonic generation, Dr. Zhongping Chen comparing

depth decay in fixed samples with optical coherence tomography (OCT), and Dr. Bill Mantulin in conjunction with the Dept. of Biomedical Engineering studying fluorescence correlation spectroscopy. This is the second sabbatical visit for Dr. Lindmo who was at BLI from August 1996-July 1997 to collaborate with Dr. Zhongping Chen on Monte Carlo simulation of optical Doppler tomography (ODT) and OCT.

IADR PRESENTATIONS

Of the 12 papers (from over 7,000 submitted) included in the official press release of the annual meeting of the International Association for Dental Research (IADR) held March 21-25, 2007, two were by post-doctoral fellows from BLI. Jungrae Chung ("Optical diagnosis of multiple stages of oral cancer") and Jun Zhang ("3D imaging of oral carcinogenesis with optical coherence tomography") are researchers in Dr. Zhongping Chen's lab who are collaborating with BLI Dentistry Director Petra Wilder-Smith.



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