



**BECKMAN LASER INSTITUTE**

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SPRING 2011

## SUCCESS OF TATTOO REMOVAL PROGRAM RECOGNIZED

In the early 1990s, then Orange County Superior Court Judge David O. Carter approached Beckman Laser Institute (BLI) Co-Founder Michael W. Berns with an idea for a tattoo removal program that would be run by the Probation Department and offer people on probation and gang members a way to have visible stigmatizing tattoos removed at no charge to them. The program would be subsidized by the Probation Department, and BLI would charge a nominal fee for its services. The program was instituted with some success but, due to many challenges, did not continue.

In 2008, Judge Carter, now a United States District Judge, met with UC Irvine Chancellor Michael V. Drake, Executive Vice Chancellor Michael R. Gottfredson, BLI Director Bruce J. Tromberg and BLI Medical Director J. Stuart Nelson to ask that the tattoo removal program be reinstated. He pointed out that patients would gain a much needed boost in confidence and self-esteem. By having tattoos removed, they would not be prejudged, and they would be better able to communicate and get a job. Impressed by Judge Carter's enthusiasm and with the support of Chancellor Drake, Executive Vice Chancellor Gottfredson, and BLI Director Tromberg, Dr. Nelson decided after the meeting that they were in a unique position to help these men and women get a new start with their lives. BLI Ambulatory Practice Manager Andrea Giancarli would manage the day-to-day details, such as appointments and scheduling, to ensure the program would run efficiently. Tattoo removal requires at least 5-6 treatments. All that was needed were participants.



*From left to right: BLI Director Bruce Tromberg, BLI Medical Director J. Stuart Nelson, BLI Ambulatory Practice Manager Andrea Giancarli, U.S. District Court Judge David O. Carter, Assistant Deputy Chief U.S. Probation Officer Michael Terrell.*

By mid-2008, the U.S. District Court's Offender Tattoo Removal Program was in place. Many of Judge Carter's colleagues supported the program by referring men and women who had completed serving their prison time. The U.S. Probation Office was ready to follow through and make sure those on probation would show up for early morning appointments. The court would pay for treatment, and BLI would charge a minimal fee.

Judge Carter has emphasized that it takes courage for someone who has been in prison to decide to better his or her life by getting a job and become a contributing member of the community. By having tattoos removed, this person can be a positive role model. Because this decision indicates a rejection of a former lifestyle and acquaintances, this person might be exposed to possible pressure

and danger.

So far, more than 30 patients have been treated or are still being treated for tattoo removal. In a ceremony that took place on March 8, 2011, at the Ronald Reagan Federal Building and United States Courthouse in Santa Ana, CA, Judge Carter acknowledged the contribution of UC Irvine and the Beckman Laser Institute to the success of the tattoo removal program by presenting a plaque to the Institute and a crystal desk award to Dr. J. Stuart Nelson "in recognition of your dedication and commitment to the U.S. District Court's Offender Tattoo Removal Program. Your gracious investment of time, concern and compassion have all contributed to the successful reintegration of federal offenders into society."

*(Tattoo Removal continued on p. 5)*

# Academic Entrepreneurism and Conflict of Interest (COI)

by **Michael W. Berns, Ph.D.**

Arnold and Mabel Beckman Professor  
Co-Founder, Beckman Laser Institute

When I entered academia in 1970, professors were expected to do research and teach: dual roles but roles that were compatible. There were no intellectual property offices on campuses, and being involved with companies other than occasional consulting was frowned upon and even discouraged. Professors who worked with companies were kind of looked on as “getting their hands dirty.” Things have certainly changed since then! Now, corporate involvement is a norm and even encouraged by some departments. I’d like to explore the “cultural shift” in academia as a continuation of my series on faculty entrepreneurship and conflict of interest (COI).

One of the driving forces for this shift has been the Small Business Innovation Research (SBIR) program started after the 1980 Bayh-Dole Act which relinquished government owner-

ship of inventions that were developed using federal dollars. Ownership was transferred to the academic institution, company, or individual inventors depending upon the specific situation. This act created a paradigm shift in academic behavior, both by the potentially royalty-receiving professors (who could actually get rich) and the campus administrators who perceived a significant new source of revenue. From 1995 to 2000, California alone received 686 SBIR awards totaling \$1.9 billion ([http://web.sba.gov/tech-net/public/dsp\\_search.cfm](http://web.sba.gov/tech-net/public/dsp_search.cfm)), many of which were for “start-ups” involving only one or two individuals. California companies have received a total of 9,200 awards, many of which have been subcontracted to professors’ labs who are either consultants, members of scientific advisory boards, or company Founders. This creates an ethical question that cannot be ignored: “Is the relationship with the company harmful to the academic integrity and responsibilities of the individual?”

All institutions have COI policies fol-

lowing National Institutes of Health (NIH) guidelines that were modified following a 2003 scandal when some NIH scientists were discovered to be receiving compensation from companies whose drugs and devices they were testing (*Scientific American*, November 25, 2004). However, even with new and evolving COI policies, there are serious questions with respect to (1) uniformity of COI policies and implementation between institutions, (2) loopholes in existing COI policies, (3) when does a conflict become harmful and how is it then managed by the institution, and (4) conflict of commitment – a fuzzy concept which is frequently mentioned but has yet to be effectively defined. Finally, there is the phrase “appearance of a conflict.” How is this defined, and how do institutions actually manage “appearance of a conflict?”

The question must be asked: does the cost:benefit of COI favor more or less scrutiny? These issues are particularly

*(COI continued on p. 6)*

## Honors and Awards

**Michael W. Berns, Ph.D.**

BLI Co-Founder Michael W. Berns has been invited to be a Fellow of the Society of Biology. The society is the leading professional body of biological sciences in Great Britain. Members include practicing scientists, students at all levels, professionals in academia, industry and education, and non-professionals with an interest in biology. With an effective membership of over 80,000, there are around 1,700 Fellows of which only 12% are foreign (outside of the United Kingdom).

**Kristen Kelly, M.D.**

Associate Professor Kristen Kelly has once again been recognized by the

Orange County Medical Association (OCMA) as a “Physician of Excellence” in the field of Dermatology. Every year, the OCMA conducts a comprehensive survey of local physicians and rates them on leadership, teaching, mentoring, medical research, scientific advances, and humanitarian service. The list of Orange County’s top doctors appeared in the January 2011 issue of *Orange Coast* magazine.

**Brian Wong, M.D., Ph.D.**

Professor Brian Wong has been selected for the 5th straight year as a “Physician of Excellence” by the Orange County Medical Association (OCMA) in Otolaryngology-Head and Neck Surgery. Based on a comprehensive survey that rates physicians on leadership, teaching

and mentoring, medical research and scientific advances, and humanitarian service, the list of Orange County’s top doctors appeared in the January 2011 issue of *Orange Coast* magazine.

**Albert Cerussi, Ph.D.**

Associate Researcher Albert Cerussi has received an Institute for Clinical and Translational Science (ICTS) grant for “Development of metabolic imaging probes embedded into standard minimally invasive clinical instruments for improving critical care patient outcomes.”

**Martha Alvarez-Elizondo, Ph.D.**

Martha Alvarez-Elizondo, a postdoctoral

*(Honors and Awards continued on p. 8)*

## This Isn't Your Grandparent's Hearing Aid

Although it is called EarTrumpet, which reminds one of the cartoon of an elderly man with a huge cone-shaped device stuck in his ear trying to hear in vain what someone is yelling, the 21st century version is an application (app) for an iPhone, iPod, or iPad. The purpose is still hearing-related, but the possibilities are multiple. The EarTrumpet assists hearing as well as tests hearing, determines the problem and adjusts the settings for the individual.

In Fall 2009, Brian Wong, M.D., Ph.D., Professor and Director of the Division of Facial Plastic Surgery in the Department of Otolaryngology-Head and Neck Surgery at UCI Medical Center (UCIMC), invited his colleague, Dr. Hamid Djalilian, Director of the Hearing and Balance Center, to speak to his class about hearing devices. During the lecture, someone asked about the cost of hearing aids, and when Dr. Djalilian responded that the cost was about \$5,000, the class and Dr. Wong were surprised. Dr. Wong thought that hearing aids were very expensive and that a new solution should be sought, and he asked Dr. Djalilian if anyone had ever used an iPhone as a hearing aid. Drs. Wong and Djalilian discovered that the only thing available for iPhones or iPods was an app that amplified sound. Where an amplifier makes all sound loud, according to Dr. Djalilian, most people with hearing loss only need certain pitches amplified. Their idea of how to use an iPhone as a hearing aid languished until, as Dr. Wong puts it, “a really bright medical

student came into my lab.”

Allen Foulad, 28, decided to see if he could come up with an app for the iPhone. “At the time, I had some programming experience, but I didn’t have an iPhone, iPod or even a Mac,” Foulad said. Foulad borrowed an iPod, used the school’s Mac lab and quickly adapted to the system. Within months, the app was



*Patient using the EarTrumpet app on his iPhone.*

created. The app actually analyzes your hearing by giving you an audiogram, and it also puts it in lay terms for the user and analyzes what might be wrong. Foulad requested a study from the state’s Institutional Review Board for approval to start research on humans. The study was approved by Summer 2010, and the app was available on iTunes on August 14, 2010. Everyone at UCIMC was very supportive, and UCI School of Medicine Dean, Dr. Ralph Clayman, extended the support by giving the most recent class of medical students iPads.

Wong, Djalilian and Foulad are hoping that future students will have the EarTrumpet app downloaded on their iPads and will use them in student-

run health clinics. “They are using nothing to screen people for hearing loss,” Foulad said. “There’s no means to do it at the clinic.” He added that it could be useful in free clinics or for doctors in developing countries that lack the technology to properly test hearing. Although most hearing loss is due to environmental factors or age, it can also

indicate more severe health issues, such as a tumor.

Because hearing aids can cost up to \$6,000, the cost is prohibitive for those who are on a fixed income or who aren’t covered by a healthcare plan. Dr. Djalilian suggested the app to one of his patients, a grandmother in her 80s who wasn’t able to communicate with her family and couldn’t afford a hearing aid. Dr. Wong added that for about \$100, “I think it’s a reasonable alternative.”

The EarTrumpet is not intended to replace a visit to the doctor, but the inventors hope that it will encourage anyone worried about their hearing to get tested and, if needed, go to an audiologist. Right now, Foulad and the Otolaryngology-Head and Neck Surgery department are continuing to evaluate the EarTrumpet’s effectiveness in a clinical study. A newer version available at the end of January 2011 is compatible with iPads and offers a quicker hearing test. For more information, visit [itunes.apple.com](http://itunes.apple.com). ■

### **BLI Newsletter Staff**

Editor: Bruce Tromberg

Writers: Elaine Kato, Erin Miller, Deborah Birnie

Layout & Design: Brian Hill

**Third Annual Allan R. Oseroff Photomedicine Lecture**



*Professor of Medical Biophysics Brian C. Wilson*

The third annual Allan R. Oseroff Photomedicine Lecture was held on February 24, 2011, at the Beckman Laser Institute Library. Brian C. Wilson, Ph.D., Professor of Medical Biophysics at the University of Toronto and Ontario Cancer Institute, spoke on “Photodynamic sciences and medicine: an enlightening convergence.”

**Multiphoton Tomography**

Karsten Koenig, Ph.D., President of JenLab GmbH and MultiPhoton Laser Technologies, Inc., has installed a multiphoton tomography instrument at the Beckman Laser Institute to perform the first clinical two-photon imaging studies

on skin in the United States. The device, MPTflex, was a Prism Awards Winner in the Life Sciences category at BiOS SPIE Photonics West held in January 2011 at San Francisco, CA. He will be working with Associate Professor of Dermatology Kristen Kelly and several BLI faculty.



*A multiphoton tomograph being taken of a female volunteer arm using the MPTflex.*

**New Appointment**

As of January 1, 2011, Assistant Professor Bernard Choi was named Undergraduate Chair of UCI’s Department of Biomedical Engineering.

**Visitors from China**

A delegation consisting of 13 government administrators from Tianjin Binhai Technology Park of the People’s Republic of China visited the Beckman Laser Institute (BLI) on December 20, 2010. The visit was arranged by Howard Pan, President for SAG Economic & Technical Exchange in Burlingame, CA, who

requested a briefing about BLI’s research activities and how the research benefits society. Before visiting BLI, the delegation had already spent a week in Northern California talking with faculty from UC Berkeley, UC Davis and Stanford.

**Distinguished Visitor from AFOSR**

Dr. Thomas Russell, Director of the Air Force Office of Scientific Research (AFOSR) in Arlington, VA, visited the Beckman Laser Institute as part of a tour of the UC Irvine campus. He was accompanied by UCI Chancellor for Research John Hemminger and other representatives from the Chancellor’s office. Dr. Russell guides the management of the entire basic research investment for the Air Force and leads a staff of 200 scientists, engineers and administrators. Each year, AFOSR selects, sponsors and manages revolutionary basic research that impacts the future Air Force.

**Joint Chairpersons**

Dental Director Petra Wilder-Smith and Assistant Professor Jennifer Holtzman were Joint Chairpersons of the Diagnostics Section at the 2011 International Association for Dental Research General Session and Exhibition on March 14-19, 2011, in San Diego, CA.



*Demonstration of how spatial frequency domain imaging (SFDI) can detect early flap failure in skin tissue. From left to right: Postdoctoral Fellow Amaan Mazhar, Assoc. Prof. Anthony Durkin, Director of AFOSR Thomas Russell, Postdoctoral Fellow Rolf Saager, BLI Director Bruce Tromberg.*

# 2010 Vascular Birthmarks Conference Held in New York

The Vascular Birthmarks Foundation hosted another successful conference on October 8-9, 2010, in New York City. The event began on Friday night with the 2nd Mark of Beauty Gala held at the Hudson Theatre in Times Square. The weather was temperate, the music was stirring, and there were over 220 people in attendance. An announcement was made that the Foundation has reached over 50,000 families who have been networked into treatment since 1994.

Awards were given, including one to Evan Ducker for his "International Buddy Booby Read-Along." Evan is a 16-year-old who was born with a port wine stain birthmark and, with his mother, wrote a book called *Buddy Booby's Birthmark*. Doritos bags featuring Evan and the "International Buddy Booby's Birthmark Read-Along for Tolerance and Awareness" are available at grocery stores across the country. The promotion is part of the "Do Something" campaign which named Evan one of the "Top 12 Youth World Changers" in 2009. On Saturday, the Vascular



*Vascular birthmarks highlighted on an electronic billboard in Times Square.*

Birthmarks Conference was hosted at New York University for approximately 225 people. Over 15 presentations were given by the top medical experts in the field of vascular birthmarks and tumors. After the presentations, the families had medical consultations at the offices of Dr. Roy Geronemus, Director of the Laser and Skin Surgery Center in New

York City. Over 100 patients were seen that day by four different medical teams. Concurrently, insurance and legal experts, psychotherapists, make-up artists and an orthodontist were available for special sessions with the families. In addition, vascular birthmarks received publicity that weekend on a billboard in Times Square. It reminded people that treatment for vascular birthmarks is more than just cosmetic. The Beckman Laser Institute was represented by Medical Director Dr. J. Stuart Nelson, Technology Transfer Manager Deborah Birnie and Director of Development Erin Miller.

If you would like more information or to make a donation to the 2011 Port Wine Stain and Vascular Birthmarks Conference, which will be held at the Beckman Laser Institute and the Island Hotel in Newport Beach, CA, on November 4-5, please contact Erin Miller at (949) 824-4111 or [ewmiller@uci.edu](mailto:ewmiller@uci.edu). Our goal is to help more families get a proper diagnosis and treatment for their vascular birthmarks. ■

## Tattoo Removal *(cont'd from p. 1)*

Two former patients who have been helped by the program spoke and related how their lives have been changed. The first, a man who formerly had tattoos on his face and neck, said people treat him differently now because they are no longer judging him by how he looks. He has a job in the textile industry. The second patient, a woman, said she is now more positive and has a better relationship with her family. She was so impressed by Dr. Nelson and the BLI staff that she plans to pursue a career in the medical profession.

Attendees of the ceremony included some of the most distinguished representatives of the Central District of California Judicial family, including Chief United States District Judge Audrey B. Collins, United States

Attorney Andre Birotte, Jr., Federal Public Defender Sean Kennedy, Chief United States Probation Officer Michelle Carey, and District Court Executive and Clerk of Court Terry Nafisi as well as several other U.S. District Court Judges, many members of the United States Probation Office, including Assistant Deputy Chief U.S. Probation Officer Michael Terrell, and the patients themselves with family members.

Judge Carter closed the ceremony by saying that this program has saved



*Judge David O. Carter (left) with Dr. and Mrs. J. Stuart Nelson after the ceremony.*

Orange County millions of dollars because for every \$1 it costs for the tattoo removal program, it costs \$7 for incarceration. He also said that he believes this can serve as a model for the rest of the country. ■

## Brian Hill

Brian Hill was hired as a programmer/analyst at Beckman Laser Institute (BLI) in 2003 to initially do some programming for both BLI Assistant Professor Bernard Choi and the Diffuse Optical Spectroscopy (DOS) lab. Today, Brian does a little of everything related to programming in the BLI, from website design and databasing to instrument development, modeling, and computation. His first project was to develop a program for the laser breast scanner (LBS) instrument to control different pieces of hardware (i.e., spectrometer, network analyzer, laser diodes). A measurement from the LBS consists of sending commands to these devices and getting data back, which is what the program handles. The program also provides the user an interface to be able to control these components in different ways for different types of measurements. Brian has made the interface as streamlined as possible for clinical use, aiding in the repeatability of the studies, and automatic error-checking. Using Matlab, he has also developed a program that processes the raw data taken from the instrument and turns it into numbers that are clinically meaningful. Brian has managed to make this software work so well that it can be run in real time as measurements are taken.

Around 2005, Brian also became responsible for the accompanying data-

base work for the Laser Microbeam and Medical Program (LAMMP) and the medical clinic. The database for LAMMP holds all the LAMMP projects and allows outside users to submit projects to BLI. This also connects to a calendar system for some of the LAMMP resources. From this, researchers are able to see how much time is being spent with different instruments on different projects. The database for the clinic is used to help manage the clinical protocols. Presently, Brian is working on a new clinical patient database to help organize and archive old data that will enable clinicians to visualize and compare patients easily.

In the same year, Brian took on the additional responsibility for the BLI Website which contains personnel databases and a faculty profile management system. An events database holds all the seminars and events, and seminar videos can be put on the web when they are recorded. There is a lab website database system that a few of the BLI labs use to make their own sites. In the last two years, he has also arranged the page layout for the BLI Newsletter. Brian continually amazes and impresses the BLI staff because he always handles requests with a “no problem,” and tasks are seemingly done as quickly as a click of the mouse.

Brian received an M.S. in Chemical Engineering from UC Irvine in 2003 where he did research with BLI Professor Vasan Venugopalan on the “Use of the delta-P1 approximation to recover opti-



Brian Hill

cal absorption, scattering, and asymmetry coefficients of turbid media.” Recently married last year, he lives in Irvine with his wife, Elissa, and their two dogs, Barnum (a Maltese) and Bailey (a Bichon/poodle mix). In his spare time, he enjoys playing and watching sports, especially basketball.

When asked what he thought of his job, Brian responded, “I find this very rewarding because I’m working on things that other people will use and in many cases, hopefully, make some aspect of their work easier. I also get to work on a wide variety of projects, many of which let me be a little creative. It’s also challenging because technology is always evolving, and especially with the web, there are always new tools and techniques that allow one to do more and more. I think this keeps things fresh and exciting. Also, I think of programming sort of like a logic problem so it’s very rewarding when you can figure out how to apply the tools you have available to accomplish something new.” ■

## COI *(cont’d from p. 2)*

relevant to biomedical researchers because the ultimate output of our research is often devices that aim to improve human health. Are our students given full freedom to choose projects that are scientifically challenging and increasing their base of knowledge, or are they being pressured overtly or subtly to work on projects that will benefit the professor’s companies and/or financial interests? Have the faculty

members/advisors fully disclosed all their financial interests to the university (and, in certain instances, to their students), and do the universities have in place adequate mechanisms to monitor and regulate faculty COI? These questions will continue to be posed as more academics engage in entrepreneurial activities at research universities. Finally, the U.S. Supreme Court will soon hear oral arguments in *Stanford v. Roche* that could give faculty members more rights to own inventions that arise

from their work on federally financed research projects. If decided in favor of the plaintiffs (*Roche*), this could reverse the 30 year practice of universities owning the patents on inventions of their faculty/employees as well as their having a key role in commercializing billions of dollars of academic research. Understandably, faculty is rooting for *Roche* and the universities are pulling for *Stanford*. The stakes are high, and COI issues could become even more problematic. ■

# Arrivals and Departures

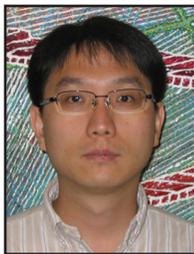
## ARRIVALS

**Pierre Khoury, M.S.**, has been hired as a Research Assistant at Modulated Imaging, Inc., which is located in the Photonic Incubator at BLI. Dr. David Cuccia, CEO of Modulated Imaging (MI), Inc., says, "We're very excited to have Pierre at MI. Pierre brings his expertise in biomedical signal analysis and image processing to MI, Inc., where he will work on computational methods to advance calibration and analysis methods toward accelerated MI data processing. This will enable immediate visualization of MI data by clinicians, critical for effective collaborations and driving MI technologies toward commercialization."



Pierre Khoury

**Chang Seok Kim, Ph.D.**, is a Visiting Professor who is an Associate Professor of Cogno-Mechatronics Engineering from Pusan National University in South Korea. He will be working with Dr. Zhongping Chen to develop light sources for optical coherence tomography and photoacoustic imaging.



Chang Seok Kim

**Janaka Ranasinghesagara, Ph.D.**, has been hired as a postdoctoral scholar and is working with Drs. Vasan Venugopalan and Jerry Spanier. He completed his Ph.D. at the University of Missouri and worked previously as a postdoctoral fellow at the University of Alberta before joining the virtual photonics core at BLI.



Janaka  
Ranasinghesagara

**Erin Sullivan, B.S.**, has been hired as a Research Coordinator. She will be in charge of a phase I/II novel technology multi-center translational study for American College of Radiology Imaging Networks (ACRIN) which is monitoring and predicting breast cancer neoadjuvant chemotherapy response using diffuse optical spectroscopic imaging (DOSI).



Erin Sullivan

**Zahra Moayedi, B.S.**, has been hired as a Junior Specialist to work on microrheology in Dr. Elliot Botvinick's lab.



Zahra Moayedi

## DEPARTURES

**Eugene Huang, Ph.D.**, has left BLI to start his own company in Pasadena, CA.

**Jae Gwan Kim, Ph.D.**, has accepted a position as Assistant Professor at the School of Information and Communication Engineering at the Gwangju Institute of Science and Technology in South Korea.

**Jae Myoung Lee, Ph.D.**, a Project Scientist who worked in Dr. Zhongping Chen's lab, has returned to his faculty position in South Korea.

**Sucbei Moon, Ph.D.**, has accepted a faculty position at Kookmin University in Seoul, South Korea.

## Selected Recent Publications

"Longitudinal, multimodal functional imaging of microvascular response to photothermal therapy" by A. K. Bui, K. M. Teves, E. Indrawan, W. C. Jia and B. Choi in *Optics Letters* 35: 3216-3218, 2010.

"Numerical optimization of sequential cryogen spray cooling and laser irradiation for improved therapy of port wine stain" by M. Milanic, W. Jia, J. S. Nelson and B. Majaron in *Lasers in Medicine and Surgery* 43: 164-175, 2011.

"Toward multimodality oral cancer diagnosis in the XXI century: blending cutting edge imaging and genomic/proteomic definition of suspicious lesions" by A. D. Le, D. V. Messadi, J. E. Epstein and P. Wilder-Smith in *Bioinformation* 5: 304-306, 2011.

"Do you need to worry about tooth decay in patients who aren't eating?" by J. Holtzman in *Infant, Child, and Adolescent Nutrition* 2: 355-357, 2010.

"An intact centrosome is required for the maintenance of polarization during directional cell migration" by N. M. Wakida, E. L. Botvinick, J. Lin and M. W. Berns in *PLoS ONE* 5(12): e15462. Doi:10.1371/journal.pone.0025462, 2010.

"Early detection of complete vascular occlusion in a pedicle flap model using quantitative spectral imaging" by M. R. Pharaon, T. Scholz, S. Bogdanoff, D. Cuccia, A. J. Durkin, D. D. Hoyt and G. R. D. Evans in *Plastic and Reconstructive Surgery* 126: 1924-1935, 2010.



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**Honors and Awards** *(cont'd from p. 2)*

fellow in Dr. Elliot Botvinick's lab, has received a grant from UC MEXUS (University of California Institute for Mexico) to study "Matrix stiffness role on cardiomyocytes contraction." UC MEXUS-CONACYT (Mexico's National Council for Science and Technology) provided support during her first post-doctoral year.

**Austin Moy**



*Austin Moy*

Austin Moy, a Biomedical Engineering graduate student in Dr. Bernard Choi's lab, was awarded a Student Travel Grant for the 2011 Annual Conference of the American

Society for Laser Medicine and Surgery which was held on March 30-April 3, 2011, at Grapevine, TX.

**Bruce Yang**



*Bruce Yang*

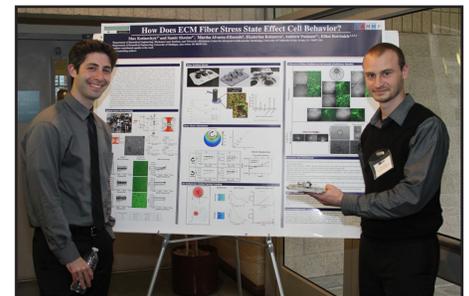
Bruce Yang, a Biomedical Engineering student in Dr. Bernard Choi's lab, was awarded a National Institutes of Health (NIH) TL-1 predoctoral fellowship from the Institute

for Clinical and Translational Science (ICTS) at UC Irvine.

**Max Kotlarchyk and Samir Shreim**

Biomedical Engineering (BME) graduate students Max Kotlarchyk and Samir Shreim have received an award from the Department of Biomedical Engineering Retreat Collaboration Competition for "Effects of focal adhesion and substrate mechanical properties on cell-ECM interactions: finite element model and experimental validation." Working in Dr. Elliot Botvinick's lab, they intend to utilize the lab's devices and measure-

ment capability to validate fellow BME graduate student Henry Wong's finite element models of cell mobility.



*Max Kotlarchyk and Samir Shreim*

**Rolf Saager, Ph.D.**

BLI Postdoctoral Fellow Rolf Saager was awarded a Travel Grant to attend and present a paper at the 2011 Annual Conference of the American Society for Laser Medicine and Surgery which was held on March 30-April 3, 2011, at Grapevine, TX.