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Activities

Tre Welch presented a poster "Influence of Thermal Annealing on the Mechanical Characteristics of a Resorbable PLLA Stent" at the UT Southwestern Graduate Student Organization Poster Competition and the 39th Annual Sigma Xi Research Forum in October 2007. Among the 66 entries, Mr. Welch's poster won an "Honorable Mention" with a certificate and cash award

ALUMNI UPDATE

• Dr. Pedram Bohluli graduated from Shahid Beheshti Dental School in 1998. In 2002, he received his M.S. and Ph.D. in Biomedical Engineering from the joint graduate program from the University of Texas at Arlington and the University of Texas Southwestern Medical School. Dr. Bohluli carried out his dissertation research under supervision of Drs. Robert Eberhart and Fiemu Nwariaku. Upon graduation from our program, he attended Columbia University College of Dental Medicine where he earned a postdoctoral certificate in endodontics. Currently he is an assistant professor at the University of Texas Dental Branch at Houston.

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Latest

members and development of closer collaborations within UT Arlington and with UTSW, the Bioengineering Department is poised for greater accomplishments in research and education of the next generation of bioengineers.

*Khosrow Behbehani, Ph.D., P.E.,
Chair, Bioengineering Department*



THE UNIVERSITY OF TEXAS
AT ARLINGTON
BIOENGINEERING DEPT.
Post Office Box 19138
Arlington, TX 76019
Phone: 817 272 2249
Fax: 817 272 2251
Email: bme@uta.edu
www.uta.edu/biomed_eng

We welcome your suggestions and comments. Alumni, please forward your accomplishments for publication in future issues. Also, please inform us of any address change.



THE UNIVERSITY OF TEXAS
SOUTHWESTERN MEDICAL
CENTER
5323, Harry Hines Blvd.
Dallas, TX 75390 - 9130
Phone: 214 648 2503
Fax: 214 648 2991
Email: bme@utsouthwestern.edu
www.utsouthwestern.edu

DEPARTMENT OF BIOENGINEERING THE UNIVERSITY OF TEXAS AT ARLINGTON

Post Office Box 19138
Arlington, TX 76019-0138

Address Correction Requested



The University of Texas
at Arlington
www.uta.edu/biomed_eng

BULLETIN

The University of Texas
Southwestern Medical Center
at Dallas
www.utsouthwestern.edu

JOINT GRADUATE BIOMEDICAL ENGINEERING**MESSAGE FROM THE CHAIR:**

The fall of 2007 marks an important point in the history of the Department of Bioengineering at the University of Texas at Arlington (UT Arlington). This fall, we have attained one of our milestones by having at least 10 full time faculty members. Indeed, the total number of participating faculty members in our Joint Graduate Biomedical Engineering Program with the University of Texas Southwestern Medical Center at Dallas (UTSW) exceeds 35. The increase in faculty size has been commensurate with the increase in our student population. The total number of graduate students in the joint program is now approaching 180. Optical medical imaging and tissue engineering are at the heart of this growth in our department. The rapid growth of the Bioengineering Department has created a high demand for laboratory and office space. To prevent limitations on growth, there are short and long term construction projects underway.

For the short term, the Engineering Laboratory Building on UT Arlington Campus which currently houses our department will be expanded to have an additional floor. This will provide us with approximately twice the laboratory and office space that we currently have. The planning for this expansion is in the final stages and the construction is to start in early 2008.

The long term expansion of Bioengineering Department is scheduled for 2011 when it will move to new 225,000 square foot building, the largest on campus. The building will house the Bioengineering as well as Computer Science and Engineering laboratories from several departments from the College of Science. This will provide the needed space for the anticipated growth of the Bioengineering Department as well as closer collaboration with other disciplines.

With a larger number of highly qualified faculty -

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NEW FACULTY APPOINTMENT:

Dr. Young-Tae Kim joined the Bioengineering Department in September of 2007. Dr. Kim received his Ph.D. degree in Biomedical Engineering in 2004 from the University of Utah in Salt Lake City. While at the University of Utah (1999-2004), Dr. Kim worked as a Graduate Research Assistant in the W.M. Keck Center for Tissue Engineering. During this time, Dr. Kim was the recipient of two Professional Development and Travel awards from the Society for biomaterials in 2002 and 2003.

Upon completing his doctoral degree, Dr. Kim joined the Georgia Institute of Technology as a Post-Doctoral Fellow. The focus of his research has been on the application of nano-biotechnology to the regenerative therapy.

In his new position as an Assistant professor of Bioengineering, Dr. Kim plans to continue his research on the development of regenerative therapies using nano/biotechnology. His prime area of focus is to develop biomimetic corneal stroma using a novel nanofiber-based construct and biomaterial-enabled cell transplantation therapies for neurodegenerative disease treatment. He is also working on biomaterial-enabled cell transplantation therapies for neuro-degenerative disease treatment. In addition, Dr. Kim is also investigating nano-based techniques for post-insult regeneration of heart tissue. For this purpose he is exploring host-derived thick, pre-vascularized bioengineered cardiac grafts.

Dr. Kim will play a major role in the nano-bio cluster that has recently been formed in the College of Engineering at the University of Texas at Arlington.

RECENT FACULTY ACTIVITIES

Grants

Dr. Liu is the principal investigator of a R21/R33 four-year grant from National Institutes of Health totaling \$1,064,000. In this research, Dr. Liu will investigate the use of optical tomography for anti-stroke therapy. Her collaborators in this research are Drs. Jianzhong Su and Hua Shan from the Department of Mathematics of UT Arlington and Drs. James Simpkins and Shaohua Yang from the University of North Texas Health Science Center at Fort Worth, Texas.

Dr. Yang has received the following grants

- American Heart Association Beginning Grant-in-Aid award for developing tissue engineered blood vessels.
- UT Arlington Research Enhancement Award for developing novel biodegradable elastomers for tissue engineering,
- UT Arlington-UTSW collaborative research program award for developing biodegradable coronary artery stent.

Professional Activities



Dr. Liu delivered the hooding address for the May 2007 graduation ceremonies of the Graduate School of Wake Forest University, where she had received her Ph.D. in 1992. More recently, Dr. Liu has been appointed as an Associate Editor for Optics Express, one of the fast-growing international optics journals.

Dr. Behbehani served as the chair of a session entitled "Sleep Disordered Breathing" at The 29th Annual International Conference of the IEEE-EMBS in August 2007 in Lyon, France. He also served as a member of technical committee of the IEEE Dallas EMBS Workshop in November 2007.

Publications and Presentations

- **Dr. Behbehani:** P. Xavier, K. Behbehani, J. Burk, and D. Watenpaugh, "Detecting Electroencephalo-

graphy Variations Due to Sleep Disordered Breathing Events," IEEE-EMBS, pp. 6097-6100, 2007.

- M. Al-Abed, J. Burk, E. Lucas, and K. Behbehani, "A Method to Detect Obstructive Sleep Apnea Using Neural Network Classification of Time-Frequency Plots of Heart Rate Variability," IEEE-EMBS, pp. 6101-6104, 2007.
- S. Sanjee, S. Vijendra, J. Burk, E. Lucas, and K. Behbehani, "ECG Biomarkers for Simultaneous Detection of Obstructive Sleep Apnea and Cheyne-Stokes Breathing," IEEE-EMBS, pp. 1047-1050, 2007.
- **Dr. Chuong:** T Welch, R. Eberhart, C. Chuong, "Thermal Treatment Effects on a PLLA Biore-sorbable Stent," 2007 ASME Summer Bioengineering Conference, Keystone, CO, June 20-24, 2007.
- R. Eberhart, C. Chuong, "Influence of Thermal Annealing on the Mechanical Characteristics of a Resorbable PLLA Stent," presented at the BMES Conference, LA Ca, September 26-29, 2007.
- **Dr. Liu:** "Optical Spectroscopy and Diffuse Light Imaging: Applications to Cancer Research and Brain Functions," Children's Cancer Research Institute, University of Texas Health Science Center, San Antonio, Nov. 5, 2007.
- "Optical Spectroscopy to Detect Positive Cancer Margins During Laparoscopic Surgery," 7th UT Southwestern in Vivo Cancer Cellular and Molecular Imaging, University of Texas Southwestern Medical Center at Dallas, Dallas, TX Oct. 16, 2007.
- J. Kim and H. Liu, "Variation of Hemoglobin Extinction Coefficients can Cause Errors in Determination of Hemoglobin Concentration Measured by Near-Infrared Spectroscopy," Physics in Medicine and Biology **52**, 6295-6322, 2007.
- A. Bahadur, C. Giller, D. Kashyap, and H. Liu, "Determination of Optical Probe Interrogation Field of Near-Infrared Reflectance: Phantom and Monte Carlo Study," Applied Optics **46**(23), 5552-5561 2007.
- **Dr. Nguyen:** S. Rao, M. Rahimi, C. Huggines, H. Xu, G. Sleiman, K. Nguyen, and J. Chiao. "Microfluidic Devices to Investigate Prostate

Cancer Cell Migration Toward Chemokine Gradients," BMES Conference, LA Ca, September 26-29, 2007.

- H. Xu, N. Kalu, P. Raghavan, M. Kim, K. Nguyen "Interactions of Prostate Cancer Cells to Human Microvascular Endothelial Cells Under Shear Stress Conditions." BMES Conference, LA Ca, September 26-29, 2007.
- S. Nattama, M. Rahimi, A. Wadajkar, B. Koppolu, J. Hua, F. Nwariaku, K. Nguyen, "Characterization of Polymer Coated Magnetic Nanoparticles for Targeted Treatment of Cancer." BMES Conference, LA Ca, September 26-29, 2007.
- A. Sabnis, A. Wadajkar, M. Rahimi, C. Chapman, K. Nguyen. "Factorial Analyses and Cytotoxic Evaluation of Thermoresponsive Nanoparticle Composite Hydrogels." BMES Conference, LA Ca, September 26-29, 2007.
- M. Rahimi, M. Yousef, Y. Cheng, E. Meletis, R. Eberhart, and K. Nguyen. "Magnetic Nanogels for Drug Delivery and Tissue Engineering Applications," BMES Conference, LA Ca, September 26-29, 2007.
- K. Nguyen, K. Shukla, M. Moctezuma, L. Tang. "Cellular and Molecular Responses of Smooth Muscle Cells to Surfaces' Nano-Topography." Journal of Nanoscience and Nanotechnology, **7**:2823-2832, 2007.
- **Dr. Tang:** W. Jiang, S. Su, R. Eberhart, L. Tang. "Phagocyte Responses to Poly L-lactic Acid." Journal of Biomedical Materials Research **82**(2):492-497, 2007.
- M. Andersson, J. Hedlund, M. Berglin, H. Elwing, L. Tang. "Molecular Mobility of Polymeric Implants and Acute Inflammatory Responses: An Experimental Study in Mice." Journal of Materials Science: Materials in Medicine, **18**(2): 283-286, 2007.
- D. Bhattacharyya, K. Pillai, L. Tang, R. Timmons "Immobilization of Biomolecules on Pulsed Plasma Polymerized Poly (vinyl acetic acid) Thin Films." PMSE preprints **96**:340-341.
- V. Lin, S. Wang, C. Xu, S. Zhang, L. Tang. "Prostatic Stromal Cells Derived from Benign Prostatic Hyperplasia Specimens Possess Stem Cell like Property." Prostate **67**:1265-1276, 2007.

- J. Zdolsek, J. Eaton, L. Tang. "Histamine Release and Fibrinogen Adsorption Mediate Acute Inflammatory Responses to Biomaterial Implants in Human." Journal of Translational Research **5**:31, 2007.
- **Dr. Yang:** He was invited to present a 40-minutes presentation titled "Biodegradable Elastomers for Cardiovascular Tissue Engineering and Orthopedic Devices," Chinese Institute of Engineers /USA-DFW Annual Convention, 08/25/2007.
- J. Mathew, V. Kache, C. Liu, L. Tang, J. Yang, "Nano-Featured Highly Interconnective Macroporous Elastic Scaffolds for Cardiovascular Tissue Engineering," Proceeding of IEEE Engineering in Medicine and Biology Society, Dallas Workshop 2007.

STUDENT ACTIVITIES

Barbeque party: The Biomedical Engineering Student society (BMES) organized a Fall Semester kick-off Barbeque picnic in a park located next to UT Arlington campus. The event was well attended by faculty and students. BMES has also organized technical talks during the noon Development Hours on several Wednesdays throughout the semester.



BME Fall-2007 Barbeque Party



Student Orientation Program-Fall 07

The Bioengineering Department (BE) organized a 'Student Orientation Program,' in which new students are advised on various academic issues. A significant amount of increase in student population was observed in the BE Department for the Fall 2007 semester.

Continued, please see Activities page 4