

**EXPANSION OF THE ELB:**



Rapid growth of the Bioengineering Department and others in the UT Arlington College of Engineering has brought about a sizable expansion of the Engineering Laboratory Building (ELB). Under this expansion, a third floor will be added to the existing two-story building. The project, which got underway in the summer of 2008, also involves a remodeling of the first floor.

At the completion of this expansion, the Bioengineering Department will receive almost 7,000 square feet of new space. This new space will provide teaching laboratories for biomaterial and tissue engineering as well as optical medical imaging. It will also accommodate the offices and research laboratories of the faculty members who recently joined the department.

**Faculty Activities - Continued from Page 3.**

- J. Dey, H. Xu, J. Shen, P. Thevenot, S.R. Gondi, K.T. Nguyen, B.S. Sumerlin, L. Tang, J. Yang, "Development of biodegradable crosslinked urethane-doped polyester elastomers", *Biomaterials*, 2008, 46:1318-1328.

**Dr. Zuzak:**

- K.J. Zuzak, S.C. Naik, G. Alexandrakis, D. Hawkins, K. Behbehani, and E. H. Livingston, "Intraoperative Bile Duct Visualization Using Near-Infrared Hyperspectral Video Imaging", *American Journal of Surgery*, 195(4), pp 491-497, 2008.



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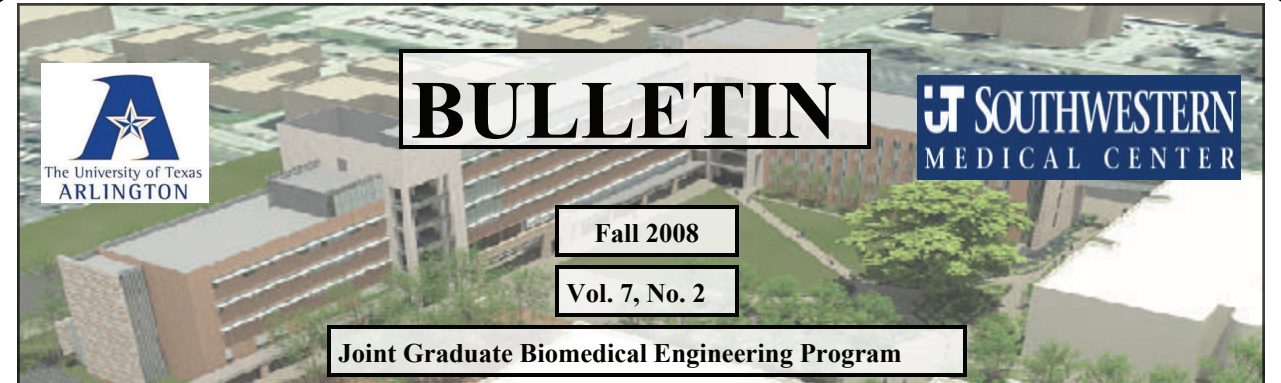
*We welcome your suggestions and comments. Alumni, please forward your accomplishments for publication in future issues. Also, please inform us of any address change.*

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**OPTICAL MEDICAL IMAGING LABS OPEN**

A higher level of collaboration between UT Arlington and UT Southwestern Medical Center at Dallas (UTSW) began with the official opening of the Optical Medical Imaging Laboratories at UTSW on August 29. The four labs, which are located in the Bill and Rita Clements Advanced Medical Imaging Building, are part of the Advanced Medical Imaging Research Center (AIRC). AIRC is a collaborative effort involving UTSW, UT Arlington, and UT Dallas to advance medical imaging. Researchers from UT Arlington will be working in the new labs side-by-side with researchers from the other institutions to develop innovative optical medical imaging systems aimed at improving disease diagnosis, surgical techniques, and treatment monitoring.



*Ribbon cutting was performed by (front row from left) Chair of Bioengineering Khosrow Behbehani, UTA Dean of Engineering Bill Carroll, UTA Vice President for Research Ron Elsenbaumer, UTA President James Spaniolo, UTSW President Kern Wildenthal, Congressman Joe Barton staff member Ron Wright and Vice Chancellor of the UT System Keith McDowell.*

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**NEW FACULTY APPOINTMENT:**

Dr. Mario Romero-Ortega joined the department in September 2008 as an associate professor. He received a doctorate degree in Neuroscience from Tulane University in 1997. In 2002, he joined the Neurology faculty at UTSW as an assistant professor and also the director of the Regenerative Neurobiology Research Division at the Scottish Rite Hospital for Children. He later became the assistant director of Research for Plastic Surgery Department at UTSW.



Dr. Romero's work has been published in 24 peer reviewed publications. He is member of the International Association of Nanotechnology, the Tissue Engineering Society International and the Society for Neuroscience.

His research interests are in the areas of nerve injury and repair, with a long term goal to contribute toward understanding the molecular basis that regulates neurite growth, axon guidance and target recognition, and the design of regenerative strategies with clinical applications.

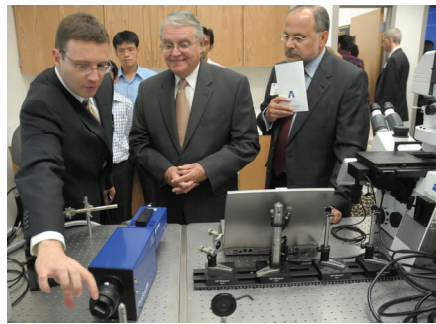
Dr. Romero employs a multi-disciplinary, experimental approach that incorporates concepts and tools from cell and molecular biology, biochemistry, mouse genetics, tissue engineering, electrophysiology and nanobiology towards the generation of nerve repair strategies. Currently, he is collaborating with Dr. Dan Sucato at the Texas Scottish Rite Hospital to develop neuroprotective strategies to ameliorate distractive flexion-distraction injuries to the spinal cord.

Dr. Romero's current efforts are placed in modifying his biosynthetic nerve implant to house microelectrodes capable of recording and stimulating individual axons in vivo.

**Medical Imaging Labs** - Continued from Page 1

Initial projects at the four new labs include the development of a DLP Hyperspectral imager for surgical and clinical use. This research will be conducted by Dr. Karel Zuzak from UT Arlington and Dr. Ron Livingston from UTSW. Dr. Kambiz Alavi from UT Arlington will also be collaborating in this project.

Dr. George Alexandrakis from UT Arlington and Dr. David Chen from UTSW will be exploring the use of a two-photon microscope for photon counting and fluorescence correlation spectroscopy to study the repair of DNA strand breaks.



During the opening ceremonies, Dr. Alexandrakis explains his optical imaging setup to Dr. Keith McDowell, Vice Chancellor of the UT System, and Dr. Philip Cohen, UT Arlington Vice Provost and Dean of the Graduate School.

Using diffuse optical imaging, Dr. Liu from UT Arlington and Drs. Cadeddu and Roherborn from UTSW will explore detection of tumors in kidney and prostate gland. diagnosis and prognosis. Dr. Davé from UT Arlington, together with Drs. Bachoo and Su from UTSW, will be investigating the use of coherent optical tomography to locate targeted nanoparticles that have attached themselves to diseased organs.

**RECENT FACULTY ACTIVITIES:****Grants:**

**Dr. Tang:**  
“Biomaterial-mediated Fibrotic Responses,” \$1,327,680; National Institute of Health, 9/22/08 - 6/30/12.

**Conference Presentations:****Dr. Behbehani:**

- M. Al-Abed, K. Behbehani, J.R. Burk, E.A. Lucas, and M. Manray “Cross Correlation and Scatter Plots of the Heart Rate Variability and R-Peak Envelope as Features in the Detection of Obstructive Sleep Apnea”, Proceedings of The 30th Annual International Conference of the IEEE-EMBS, Vancouver, Canada, August 2008.

**Dr. Chuong:**

- T. Welch, R.C. Eberhart, and C.J. Chuong, “Thermal treatment improves functional characteristics of a PLLA fiber stent”, 2008 BMES Annual Conference, St Louis, October. 2-6, 2008
- V.J. Ambravaneswaran, S. Uthamaraj, Z. Celik-Butler, R.C. Eberhart, C.J. Chuong, R.E. Billo, M.A. Savitt, “Micromachined Nanoporous Membranes for Blood Oxygenation Systems”, IEEE NanoConference, September 2008.

**Dr. Nguyen:**

- A. Wadjkar, T. Chastek, T. Chastek, S.Hudson, and K. Nguyen, “Biocompatibility and Doxorubicin Release Studies of Temperature Responsive Nanoparticles”, BMES Conference, St. Louis, Washington, 2008.
- S. Kona, J. Dong, and K. Nguyen, “In vitro evaluation of platelet mimicking biodegradable nanoparticles”, BMES Conference, St. Louis, Washington, 2008.
- K. Nguyen, S. M. N. Rao, M. Rahimi, C. Huggins and J. Chiao, “Microfabricated gradient generator: Investigation of surface treatment on prostate cancer cells”, BMES Conference, St. Louis, Washington, 2008.
- M. Rahimi, S. Kilaru, G.E. Sleiman, A.Saleh, D. Rudkevich and K. Nguyen, “Novel Temperature – Sensitive Nanoparticle-Based Drug Delivery System”, BMES Conference, St. Louis, Washington, 2008.

**Dr. Yang:**

- J. Yang, J. Dey, P. Thevenot, L. Tang, K. Nguyen, “Novel biodegradable elastic polymers and scaffold-sheet tissue engineering strategy”, Society for Biomaterials Translational Research Symposium. Atlanta, September 11-13, 2008.

- J. Yang, L. Tang, K. Nguyen, J.C. Chiao, “Novel biodegradable elastomers and scaffold sheet tissue engineering”, 16th International conference on mechanics in medicine and biology, Pittsburgh, PA, 2008

**Patents:****Dr. Behbehani:**

“System, Software, and Method for Detection of Sleep-Disordered Breathing Using an Electrocardiogram”, Inventors: K. Behbehani, S. Vijendra, J.R. Burk, and E.A. Lucas; US Patent No. 7,343,198, March, 2008.

**Publications:****Dr. Behbehani:**

- A. Farajidavar, S. Saeb, and K. Behbehani, “Incorporating Synaptic Time-dependent Plasticity and Dynamic Synapse into a Computational Model of Wind-up”, Neural Networks 21, pp 241-249, 2008.

**Dr. Chuong:**

- C.L. Chapman, D. Bhattachyra, R.C. Eberhart, R.B. Timmons, C.J. Chuong, “Plasma polymer thin film depositions to regulate gas permeability through nanoporous track etched membranes”, J of Mem Sci, 318 137-144, 2008.

**Dr. Liu:**

- J.G. Kim and H. Liu, “Investigation of bi-phasic tumor oxygen dynamics induced by hyperoxic gas intervention: *The dynamic phantom approach*,” Applied Optics 47(2), 242-252, 2008.
- K. Bensalah, A. Tuncel, D. Peshwani, I. Zeltser, H. Liu, and J.A. Cadeddu, “Optical reflectance spectroscopy to differentiate renal tumor from normal parenchyma,” J. of Urology 179(5), 2010-2013, 2008.

**Dr. Nguyen:**

- A. Wadjkar, B. Koppolu, M. Rahimi, K. Nguyen. “Cytotoxic Evaluation of *N*-isopropylacrylamide Monomers and Temperature-sensitive Poly(*N*-isopropylacrylamide) Nanoparticles.” *Journal of Nanoparticle Research*, DOI 10.1007/s11051-008-9526-5, 2008.

**Dr. Tang:**

- J. Dey, H. Xu, J. Shen, P. Thevenot, S.R. Gondi, K. Nguyen, B.S. Sumerlin, L. Tang, J. Yang, “Development of biodegradable crosslinked urethane-doped polyester elastomers”, Biomaterials 29:4637-4649, 2008.
- P. Thevenot, J. Cho, R.B. Timmons, L. Tang, “Surface chemistry influence cancer killing effect of TiO<sub>2</sub> nanoparticles”, Nanomedicine, 4: 226-236, 2008.

**Dr. Yang:**

- A. Webb, J. Yang, G.A. Ameer, “A new strategy to characterize the extent of reaction of thermoset elastomers”, Journal of Polymer Science Part A: Polymer Chem. 46:1318-1328
- J. Yang, “Development of biodegradable-crosslinked urethane-doped polyester elastomers”, Biomaterials, 46:1318-1328, 2008.

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**STUDENT ACTIVITIES:**

The Biomedical Engineering Student Society organized a Halloween Barbeque Party on the west lawn located next to the Maverick Activity Center on the UT Arlington campus. The event was well attended by faculty and students.



The UT Southwestern Graduate Students Organization hosted its annual poster session. Sandhya Mitnala and Tre Welch were named winners in the “Top 5” honors. Sandhya presented her poster titled “High-precision Spatial and Temporal Control of Neural Circuitry Using a Semi-automated, Multi-wavelength Nanopatterning System.” Tre presented his poster titled “Thermal Treatment Improves Functional Mechanical Characteristic of a Bioresorbable PLLA Fiber Stent.”