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BMEN STUDENT ACHIEVEMENTS AND RECOGNITION

Amber Combs received the Tulane 34 Award (named in honor of the founding year of the University). The award is given to 34 outstanding graduating seniors (graduate and undergraduate) who have excelled scholastically (scholarship), have distinguished records of involvement (service) and have excelled in the area of student leadership on campus.

Mindy I. Ezra was the 1st Place winner at the 2005 Summer Bioengineering Conference held in Vail, Colorado for the BS Student Paper Competition in the Solid, Design and Rehabilitation category. The paper titled, "Three-Dimensional Reconstruction of Trabecular Bone Tissue," was co-authored by **Professor Richard T. Hart** and **Dr. Michael D. Roberts**.

Weihui Li was the recipient of the 2005 Tulane School of Engineering Graduate Student Award for excellence in research and scholarship.

Mary M. Maleckar won the Best Poster Presentation, Tissue/Organ Level Mechanisms of Arrhythmias award at the Gordon Conference on Cardiac Arrhythmia Mechanisms held in St. Ivez Valley, California. The poster, "Mechanistic Insight into the Increase in the Upper Limit of Vulnerability for Rapid Pacing," was co-authored by **David Borne** and **Professor Natalia A. Trayanova**

Megan Ohar was nominated by the department faculty members and has been awarded the Biomedical Engineering Society (BMES) 2005 Rita Schaffer Undergraduate Award. The award, established in memory of former BMES Executive Director Rita Schaffer, is given annually to one undergraduate student from each of the ABET-accredited biomedical engineering programs for outstanding achievement in one or more of the following areas: leadership in department or university community; outreach to campus, community, or profession; teaching service; exceptional initiative in research; academic achievement; contribution to society.

One of six finalist selected, **Joe E. Olberding** was the 2nd Place winner in the MS level student paper competition at the ASME IMECE conference in Anaheim, CA. **Professor J-K Francis Suh** co-authored the paper titled, "Validation Studies for the Dual Optimization of Indentation Creep and Stress Relaxation of Biological Soft Tissues Using Biphasic Poroviscoelasticity: Potential Method for Brain Tissue."

<http://www.bmen.tulane.edu>



Summer/Fall 2005

Recent Awards to Faculty:

The Provost has established a new award to recognize university faculty members for their Excellence in Scholarship and Research. **Professors Donald P. Gaver** and **Natalia A. Trayanova** were two of three School of Engineering faculty members to receive the Provost's Award for Excellence in Scholarship and Research.

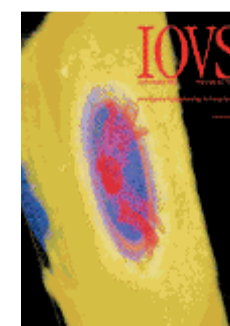
In recognition for his excellence in teaching and ongoing commitment to educational excellence, **Professor Cedric F. Walker** received the President's Award for Innovative Use of Technology in Undergraduate Teaching.

The National Sciences Foundation has awarded **Professors David A. Rice** (Principal Investigator) and **Ronald C. Anderson** (Co-Principal Investigator) five years of funding totaling \$142,988 for the grant proposal entitled "Senior Team Design Projects for People with Disabilities."

Professor Natalia A. Trayanova has been awarded five years of funding by the National Institute of Health for her RO1 grant proposal entitled "Cardiac Tissue Structure in the Defibrillation Process" The award in the amount of \$965,250 will begin on September 1, 2005.

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ALUMNI SURVEY & RETURN ENVELOPE



Department of Biomedical Engineering Alumni Newsletter

Letter from the Chair

Dear Biomedical Engineering Alumni and Friends:

In this issue of the newsletter I am pleased to report on continued successes of our faculty and students and to solicit your help by participating in our alumni survey.

Your participation by returning the survey is very important. The survey is part of our ABET (<http://www.abet.org>) accreditation process that is needed as we continue to seek feedback on our program to further refine and improve the quality of our students' education. We did our first BMEN alumni survey in the Fall of 2000, and we plan to conduct a similar survey every 5 years. Your participation not only gives us valuable feedback, but the participation percentage is very important in demonstrating to ABET that our assessment processes are working. Please help the faculty and students strive to achieve our vision of being a "global leader in biomedical engineering scholarship."

I know that you continue to be asked to help the University, the School, and the Department via financial contributions, especially since the kickoff for the fundraising campaign "Promise and Distinction" (see <http://www.distinction.tulane.edu>). We are trying to minimize overlap and simplify our processes so that there are now two simple ways of providing financial help to target biomedical engineering. One way is to contribute via the Tulane Annual Fund – you may now specify that your gift go to the Department of Biomedical Engineering. These funds come directly to the department and help with our annual expenses, such as software updates for the department and labs. A second way to contribute is by making a 'perpetual gift' in the form of a contribution to one of the department's endowment funds.

Endowment funds continue to accumulate indefinitely, with the 5% return from the funds available each year to spend. We have recently used funds in the general departmental endowment to produce the proceedings booklets that contain the abstracts from each member of the Senior class for our Undergraduate Research Day. In addition to the general departmental endowment, larger gifts may be used to endow named scholarships, professorships, or to endow a laboratory. More information, as well as a list of recent contributors, is available on the web at: http://www.bmen.tulane.edu/endowment_fund.html.

Also, if you have a potential internship or other employment opportunity, please e-mail me (rthart@tulane.edu) and I will post it in our intranet newsgroup, tulane.bmen, for students to see. I'd like to continue to build a robust network of Tulane connections to help our students and alumni. These kinds of links and evidence of our alumni interest are major items that graduating students would like to have strengthened.

I hope you enjoy reading about our efforts and successes, that you will take the opportunity to keep current via the network (websites for the School <http://www.eng.tulane.edu> and the Department <http://www.bmen.tulane.edu>) and e-mail, and that you'll stop by to visit us when you are in town.

Thanks, in advance, for your help and interest in the department – **please keep in touch and please send in the survey!**

Sincerely yours,

Richard T. Hart, Ph.D.
Department Chair



The cover of the December 2004 issue of the "Investigative Ophthalmology and Visual Science" featured the paper "Three-Dimensional Reconstruction of Normal and Early Glaucoma Monkey Optic Nerve Head Connective Tissues." The paper was authored by Dr. Claude F. Burgoyne, Professor of Ophthalmology and Director, Glaucoma Services at the LSU Eye Center, **Professor Richard T. Hart**, and former doctoral graduates of the Tulane BME program, **J. Crawford Downs** and **Anthony J. Bellezza**. In July 2005, at the World Glaucoma Congress in Vienna, Austria, this work won the 2004 Association of International Glaucoma Societies (AIGS) award for best basic science paper.

The paper, "Differences Between Left and Right Ventricular Chamber Geometry Affect Cardiac Vulnerability to Electric Shocks," was recently featured on the cover of the July 22, 2005 issue of "Circulation Research." The paper was authored by **Blanca Rodriguez**, Tulane University; James C. Eason, Ph.D., Assistant Professor, Department of Physics and Engineering, Washington and Lee University; Igor R. Efimov, Ph.D., Associate Professor, Department of Biomedical Engineering, Washington University in St. Louis; Li Li, Ph.D. student at Washington University in St. Louis; and **Professor Natalia A. Trayanova**.

Awards in Biomedical Engineering!

Each Spring, the Tulane School of Engineering and the Society of Tulane Engineers Alumni Association host an awards banquet. There were several categories of awards for accomplishments in the field of biomedical engineering, as follows:

One award recognizes the efforts of our biomedical engineering seniors who have participated in a yearlong team design project. Under the direction of **Professor David A. Rice**, design teams are assembled with three or four students who then meet with a disabled client from the New Orleans community and work during the senior year to design a device, process, or procedure to help that particular individual.

During the spring semester, the team designs were presented in a public show, and evaluated by a panel of judges. This year, the team named **Bayou Med** earned the best score from the panel of judges. Their client was a professional businesswoman who had polio in high school and remains largely paralyzed. She needed access to ventilator controls as well as a variety of devices and implements from her bed, and this team developed a multi-level elevating table to meet her needs. The team members who designed the table are:

Christine Guidry
Elizabeth Higgins
Cody Mayo
Katie Merritt

The second category of awards recognizes individual achievement in scholarship and service to the Department. The Tulane Biomedical Engineering Society sponsors a scholastic award that is given to the senior with the highest scholastic average in Biomedical Engineering. This year the honor went to:

William R. Winter

The Biomedical Engineering Honor Society, *Alpha Eta Mu Beta*, annually presents an award to the student with the highest scholastic achievement at the end of the junior year. This year's winner of the Outstanding Junior Award was:

Nathaniel C. Lawson

Each year the senior class votes for the member of the class that has contributed most to their class, their School, and their Department. In 1986 this 'outstanding service' award was given to Nissam Nathan Cohen. The award, originally named the Biomedical Engineering Service Award was renamed in Nissam's honor after his untimely death in the fall of 1986. The recipient of this year's Nissam Nathan Cohen Memorial Award is:

Amber Renee Combs

The next category of awards allows us to recognize outstanding achievements by graduate students.

Beginning in the 2003-2004 academic year, the Department has awarded the **Joyous and William Van Buskirk** partial tuition scholarship to a 5th year BS-MS student. The award has previously been made in the Fall, but was announced at the Annual Awards Banquet this year. The scholarship holder during the 2004-05 year was **Hermene-gild Arevalo**, and the Joyous and William Van Buskirk Award winner for the 2005-06 year is:

William R. Winter

The second award for a graduate student is sponsored by the student chapter of the *Biomedical Engineering Society* to honor outstanding service as a Teaching Assistant in Biomedical Engineering. Based on a vote of undergraduate students in Biomedical Engineering, the winner this year is:

Jerina E. Pillert

The final graduate student awardee is selected by the Biomedical Engineering faculty based on nominations from faculty members that can highlight student achievement in scholarship, independent research, mentoring of fellow students, and/or leadership. This year's recipient was nominated by her advisor, **Professor Donald P. Gaver** who cites her research publication productivity -- including presentations, journal articles and a book chapter -- as well as her citizenship and leadership. The award this year went to:

Anne-Marie Jacob

Finally, the Biomedical Engineering Honor Society, *Alpha Eta Mu Beta*, presents an annual "Teacher of the Year Award." Undergraduate and graduate students in the department of biomedical engineering make the selection. This year's award was presented to:

Professor Donald P. Gaver

Recognitions

Professor Kirk J. Bundy was selected to be a Fellow of the Biomedical Engineering Society.

The Department of Health and Human Services, National Institute of Health, Center for Scientific Review has selected **Professor Donald P. Gaver** to serve as a member of the Modeling and Analysis of Biological Study Section, Center for Science Review for the term beginning immediately and ending June 30, 2008.

Professor Darryl R. Overby, who joined the Tulane faculty in October 2004, co-authored the grant proposal "Can Wash-Out be Induced in the Human Eye to Reduce IOP?" with Haiyan Gong, M.D., Ph.D. of Boston University Medical Center. The proposal was submitted to the Na-

tional Glaucoma Research Grant, American Health Assistance Foundation, which awarded funding in the amount of \$90,000 to Dr. Gong and Boston University Medical Center.

Professor Natalia A. Trayanova was elected Vice-Chair for 2007 and Chair for 2009 of the Gordon Conference on Cardiac Arrhythmia Mechanisms.

Heart Rhythm, the official journal of the Heart Rhythm Society appointed **Professor Natalia A. Trayanova** to the Editorial Board.

Professor David A. Rice is a site editor for the BME web portal BMEsource.org. The site aims to be the best reference of quality biomedical engineering internet resources. If you have found a site of BME significance, please let Dr. Rice know so that it may be included on the web portal.

News Tidbits

There are a number of short news items that may be of interest to our alumni and friends:

Translational Research: There is a growing awareness that within the range of university research efforts, there is room also for efforts directed toward device development as well as for basic research. The National Institutes of Health are encouraging research proposals to include translational research targeted toward direct benefit of discovery to patient health and care. The School of Engineering is taking a more active role to encourage entrepreneurial activities of the faculty, and Tulane has a reorganized Office of Technology Transfer and Business Development with a more proactive outlook. The city and state are working to diversify the New Orleans and Louisiana economies, and a new building is being constructed downtown (on Canal Street, across the street from the growing Tulane Health Sciences complex) as part of a new "Bioinnovation Center." There is already evidence that the strategy is working, with a small orthopaedic appliance company, Intelifuse (<http://www.intelifuse.com/>), choosing to be based in New Orleans, in part due to the presence of Tulane's Department of Biomedical Engineering. We hope this might be the start of a strong biomedical engineering industry to complement our academic accomplishments.

Cell and Molecular Engineering: The faculty in the School of Engineering has approved a new interdisciplinary graduate program to be jointly administered by three departments: Chemical and Biomolecular Engineering; Biomedical Engineering; and Cell and Molecular Biology (from the School of Liberal Arts and Sciences). Students will take courses from all three departments, and conduct interdisciplinary research with a thesis/dissertation committee composed of faculty from at least two of the participating departments.

Center for Computational Science: The Center, directed by BMEN faculty member **Professor Donald P. Gaver**, is one of the distinctive components of Tulane's infrastructure that supports interdisciplinary studies and supports Tulane and Xavier Universities. It is the first Center established in the Gulf region to focus on computational science research projects across many disciplines. The initial phase to establish the Center at Tulane University in June 2001 was made possible through funds from the U.S. Department of Energy and Tulane University. Current support comes from a NIH-funded grant in the form of a pre-NPEBC (National Center for Excellence in Biomedical Computing) entitled "*Biocomputing: Integrating Molecular/Organ-Level Function.*"

Specifically, three projects have been initiated that focus on heart, lung, and bone. Each project pairs a researcher from biomedical engineering (whose research involves simulation and analysis of these organ systems) with a researcher with complementary research interests. Each project supports a post-doctoral scholar, who works in the CCS, and each project will lead to a new interdisciplinary graduate course that is designed to provide the motivation, background, and methods needed to simulate multi-scale analyses and simulations. The heart project led to a new course in Fall 2004 taught by **Professor Natalia A. Trayanova** (BMEN) and Professor Lisa Fauci (MATH), BMEN 613, "Cardiac Modeling." In the Fall 2005 semester there will be a new course taught by **Professor Richard T. Hart** (BMEN) and **Professor J-K Francis Suh** (BMEN), BMEN 660, "Bone Adaptation," and in the Spring 2006 semester, the third new course will be taught by **Professor Donald P. Gaver** (BMEN) and Professor Henry S. Ashbaugh, III (CENG) to focus on pulmonary mechanics and surfactant molecular dynamics.

Board of Advisors: The Department's Board of Advisors was established in October 2000 and now has up to 15 members. Board members include the following continuing members:

Rich Ashman (Chair), **Sherri Longo** (Vice Chair), **Jeff Balsler**, **Neal Beals**, **Jim Bennett**, **Michael Carbo**, **Steve Cowin**, **Monroe Laborde**, **Alan Stone**, **Nisra Thongpre-da**, and **Marta Villaragra**.

as well as newly elected members:

Sam Hulbert, **Donna-Bea Tillman**, **Kevin Thomas**, and **Pat Borgan**.

Information about the Board's purpose and processes are on the web at http://www.bmen.tulane.edu/advisors_board/index.html. If you are interested in serving on the Board, please let one of the current board members know of your interest.