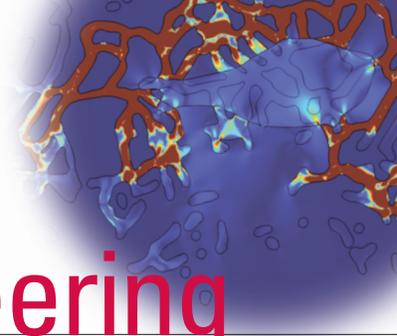


Biomedical engineering



Richard T. Hart
BME Chair

Dear Biomedical Engineering Alumni and Friends:

We are pleased to send our Autumn 2012 newsletter and again share news of recent activities.

It was an exceptionally busy—and short!—summer as we transitioned from a quarter-based academic calendar to a semester-based one. Spring commencement—featuring just our second graduating class of undergraduates (34 in the class of 2012) was on June 10. However, instead of starting the autumn in September, we had our first semester of instruction starting a month earlier, on August 22. The faculty thoroughly planned for the transition, and we re-vamped our planned undergraduate and graduate curricula more than a year ago. Those plans were put into action when we started in August. Next year, at the conclusion of spring semester, we will be finished with classes in April and commencement is May 5, 2013. Among other advantages, this will allow our students seeking summer internships to be more competitive for open positions, because many start in May or early June.

In this newsletter, we again share some of the activities and successes of our students, staff, and faculty. Our undergraduate program is at its planned capacity this autumn with approximately 75 sophomores, 75 juniors, and 75 seniors. In mid August we learned that our undergraduate program had received ABET accreditation, with a retroactive *start* so that all our undergraduates have graduated from an accredited program. I am very proud of the efforts our faculty, staff, and pioneering students. Faculty and students have been pleased with placement and opportunities for our graduates; we plan to include further details in an upcoming newsletter.

We have been authorized to begin searches to add four or more faculty members to the department over the next two years. Based on our strategic plans, we specifically are looking to add expertise in cancer imaging, medical device design, regenerative medicine related to spine studies, and spine mechanics. Some of these positions are tied to cluster-hires in the college, and all of the BME hires relate directly to the university's emphasis in health and wellness—just one of three discovery themes for Ohio State that are highlighted in the university's current strategic plans for university-wide emphasis. (See oaa.osu.edu/provost-strategic-plan-board-presentation for more details.)

Thank you for helping support our continued successes. Gifts targeted to the department can help us achieve our strategic goals, and could include opportunities to endow a named professorship, a named scholarship, or laboratories and facilities. More modest gifts help with our operations and events. (See our "Give to BME" button on our website at bme.osu.edu.)

In addition to financial support, I am hoping that the network of Ohio State alumni and friends continues to help our students find internship and employment opportunities. Please let us know of any opportunities as you find them.

I am always happy to meet our alumni and friends. Please stop by, if convenient, to get a firsthand look at our progress.

Richard T. Hart, PhD
Edgar C. Hendrickson Professor and Department Chair
hart.322@osu.edu

bme.osu.edu

Autumn 2012

Our Mission:
To promote learning
and discovery that
integrate engineering
and life sciences for
the advancement of
human health



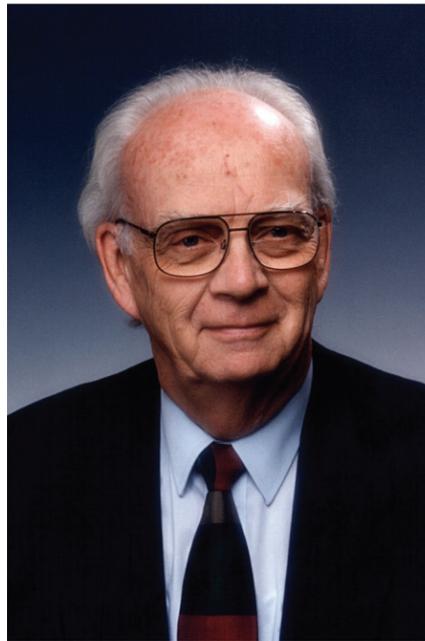
A Pioneer in Biomedical Engineering at The Ohio State University:

Herman R. Weed

Professor Emeritus

In Memory of His Lifelong Contributions to Biomedical Engineering

Herman R. Weed received an MS in electrical engineering from The Ohio State University in 1948. He was appointed instructor of electrical engineering at Ohio State in 1946 and subsequently moved through all faculty ranks to that of full professor. He retired in 1996 after 50 years of service. During his tenure at Ohio State, Professor Weed served as a visiting professor at the University of Cairo (1977) and at the University of Karlsruhe (1979). In addition, he served the world as director of the HOPE Biomedical Engineering Program in six nations from 1979 until he retired. He had advisory functions for NSF, NAE, UNESCO, American Institute of Biological Sciences, Ford Foundation, and a number of companies. His work for NSF included participating in a panel that evaluated the safety and efficacy of ultrasound as a new imaging modality. Professor Weed was a widely celebrated contributor to biomedical engineering as a discipline. His long list of recognitions and awards includes being named a national Fellow of the American Institute of Medical and Biological Engineering—one of the most important honors to him. Nominations for Professor Weed came from as far away as Poland, China, Egypt, and France. He also received many other honors and awards, including: Who's Who in the World (1995–



Herman R. Weed
August 5, 1922–January 5, 2012

96), Outstanding Biomedical Engineer of the Year, (ASEE, 1987), and Who's Who in America (1980). He received one of the Seven Engineering Wonders of Ohio awards in 1970 from the Professional Engineering Society for Visual Vocoder, and one of the Top Ten Engineering Accomplishments in the United States by the National Society of Professional Engineers, also in 1970.

Professor Weed's research interests were devoted to biomedical signal development and applications, one of the dearest

to his heart being device development to aid the blind. His academic passion, however, was the evolution of biomedical engineering as a discipline worldwide. In 1971 he won one of eight NSF grants to develop a biomedical engineering program at Ohio State. Under his leadership, the Biomedical Engineering Center within the Department of Electrical Engineering was created at Ohio State. The center awarded its first MS degree in 1975 and its first PhD degree in 1977. Professor Weed personally advised 80 MS students and 30 PhD students in both electrical and biomedical engineering. His vast impact in the field of biomedical engineering can be felt in many ways, not the least of which was educating new biomedical engineers and sending them into the workforce with his own high technical and ethical standards, for passage on to a new generation. He pursued this mission not only at Ohio State, but worldwide through creating curricula in the establishment of new biomedical engineering programs and personally teaching first the faculty and then the students in these programs. He offered both faculty and graduate students at Ohio State the opportunity to participate in his academic outreach by working with him through Project Hope. Professor Weed spent his life and career ensuring that the mission and vision of biomedical engineering continue to promote learning and discovery that integrate engineering and life sciences for the advancement of human health.



Doug Kniss

Q: Tell me about your research in layman's terms.

My research for the last two-and-a-half decades has focused primarily on complications of pregnancy, including problems such as premature birth and preeclampsia—the development of high blood pressure and protein in the urine. In the early days of my career, I focused on the biology of these disorders, but within the last decade, I've become more and more interested in how the physical environment in tissues can influence cell functions. That led me to form collaborations first with S.T. Yang in the Department of Chemical and Biomolecular Engineering and subsequently with John Lannutti in Materials Science and Engineering. I learned a great deal from them about how to think in a different

dimension, i.e., design principles, mathematics, and modeling. I've had the pleasure of training several students from the College of Engineering who worked in my lab almost exclusively during their dissertation research. I've learned as much from them as they have from me. I spoke to them in terms of molecules and they spoke to me in terms of mathematical equations to describe our data. We both learned to speak a new language. I am proud to say that each of these engineering students has gone on to very productive careers in academia and industry. Although I'm neither an engineer nor a mathematician, I have great appreciation for how these quantitative fields instruct a biologist like me in new ways of thinking about problems in biomedical research. *(continues)*

MEET THE FACULTY



Cynthia J. Roberts

Q: What brought you to The Ohio State University?

After graduating with a nursing degree in 1979, I worked at the University of Iowa Hospitals and Clinics as a registered nurse for about four years. I wasn't very happy as a nurse, mostly because I became too emotionally attached to my patients and did not handle it well when they died. So in 1981, I went back to school in undergraduate engineering at Iowa to pursue a second bachelor's degree in biomedical engineering, while continuing to work the evening shift as an RN. However, when I visited my brother at Ohio State, I met with the director of BME, Professor Herman Weed, who told me that my BSN would be accepted by the Ohio State BME program, without the necessity for completing a second BS. I was given a

list of undergraduate engineering courses that I needed to complete, which I did at the University of Iowa. Subsequently, I transferred to Ohio State for graduate school in 1983, and then was hired on the faculty in 1989 after I completed both my MS in electrical engineering and my PhD in biomedical engineering. BME was not a tenure-initiating unit at the time, so my tenure home was placed in the College of Medicine, first in the Department of Surgery and later in the Department of Ophthalmology.

Q: Where did you receive your degrees? What titles have you held?

BS in nursing (1979, University of Iowa); MS in electrical engineering (1986, Ohio State); PhD in biomedical engineering (1989, Ohio State). *(continues)*

In more recent years, I've been working with Samir Ghadiali in Biomedical Engineering to understand how biomechanical responses to changes in the physical microenvironment of tissues and cells, e.g., alterations in extracellular matrix or the properties in parts of cells, can influence cell behavior, such as gene expression, migration, or the ability to invade other tissues. This work is primarily focused on cancer cell motility. My group has shown recently that knocking down a gene for a protein not previously thought to have anything to do with cancer can profoundly alter the biomechanical, genetic, and invasive properties of breast tumor cells. This groundbreaking work may soon help us

understand more clearly how altering the physical environment can instruct cell biology. We've recently received a grant from NSF to continue this research.

Q: What sparked your interest in this area of research—in this general field?

I've always been interested in applying my research to problems with which I am familiar. For example, both my sons were born prematurely, and so when I was recruited to Ohio State in 1988, I decided to work on understanding preterm birth. I've worked on this problem ever since, and use new techniques including engineering and math to tackle the biology. In 2007, my son was diagnosed with type I diabetes. This discovery prompted me to focus a small part of

my lab on understanding the biology of diabetes. And although my group does not currently work directly on diabetes, I've become a strong advocate for the cause by serving as president of the Mid-Ohio Chapter of the Juvenile Diabetes Research Foundation (JDRF).

My most recent project, which is developing into a research program, focuses on cancer metastasis. Most patients die from complications resulting from the uncontrolled spread of cancer cells throughout the body. Our group in collaboration with Samir Ghadiali, BME associate professor, and others is centered on understanding how changes in the biomechanics in tumors is governed by cell behavior, and vice versa.

Q: Where did you receive your degrees? What titles have you held?

I received my baccalaureate degree in biology and psychology from Susquehanna University in 1980 and immediately matriculated at Ohio State in the graduate program within the College of Medicine. In 1986, I received a PhD in anatomy and cell biology at Ohio State and then served an 18-month fellowship at NIH. In 1988, I was recruited back to Ohio State as assistant professor of obstetrics and gynecology and became the founding director of the Laboratory of Perinatal Research. Since then, I've trained about 20 graduate students and several undergraduates, 10 postdocs, a handful of medical students, and more than 30 clinical fellows in maternal-fetal medicine.

In addition to my academic research program, I also work for the Office of Research in directing the Campus Chemical Instrument Center, a comprehensive analytical chemistry core facility featuring mass spectrometry and proteomics and NMR spectrometry services to the faculty. I am also incoming president of the Juvenile Diabetes Research Foundation.

Q: Earlier this year, you were elected to the American Institute for Medical and Biological Engineering (AIMBE), and inducted into the 2012 class of the College of Fellows. How did you feel receiving this honor?

I was shocked and thrilled to receive entry into the Fellowship of the American

Institute for Medical and Biology Engineering. AIMBE is the leading engineering educational and lobbying group in the United States in matters of public policy and legislative activities involving biomedical engineering and related disciplines. As a non-engineer, I am honored to have been one of 85 Fellow inductees. Being recognized by a group of largely engineering and physical scientists is very gratifying, knowing that even an outsider with a commitment to understanding biology in the context of physical principles can make contributions to the field of biomedical engineering.

MEET THE FACULTY

All at Ohio State: assistant professor, Biomedical Engineering and Surgery (1989–97); assistant professor, Ophthalmology (1994–97); associate professor, Biomedical Engineering, Ophthalmology, and Surgery (1997–2007); associate director, Biomedical Engineering Center and Program (2003–2005); associate chair, Department of Biomedical Engineering (2005–2006); Torrence A. Makley Research Professor, Department of Ophthalmology (2003–2007); Martha G. and Milton Staub Chair for Research in Ophthalmology (2007–present); professor, Ophthalmology, Biomedical Engineering, and Surgery (2007–present).

Q: What/who influenced you to become a biomedical engineer?

I come from a family of medical people. My father was a surgeon and my mother was a nurse. One of my sisters also went into nursing. However, my maternal grandfather had a technical background, and my older brother studied electrical engineering. I have to admit that when I was considering changing careers from nursing to engineering, I was not sure what my brother did, other than build computers from Heath kits, or even what I would do as an engineer. All I knew was that the word "biomedical" was in front of the word "engineering" as I skimmed the course catalog at the University of Iowa, and I wanted to build on the background I

already had. From this circuitous pathway, I chose to study biomedical engineering.

Q: Tell us a little about your personal background.

I have been married for 24 years and my husband, Dr. Robert Small, is vice chair of anesthesiology at Ohio State. He has a BS in electrical engineering from Montana State University, worked for Boeing in flight controls, and then came to Ohio State for graduate school in BME on his way to medical school. We met in the BME graduate program! We have three children, with only one still living at home. My stepson, Lucas, is 32 years old, married, and living in Kentucky. His wife, Delana, is an Army chaplain and Lucas is studying to be an Army chaplain. My son, Charlie, is 22 years old and lives in

Salt Lake City while working at Primary Children's Hospital. His nickname is the "Baby Whisperer" since, if they have a crying kid, my son can usually calm and comfort the child when others are not as successful. My daughter, Stephanie, is 17 years old and is a high school senior this fall. She rowed for the UA crew team and has received multiple medals over the years—gold, silver, and bronze. She plans to attend Ohio State after receiving her diploma. She does not yet know what she wants to study. I told her she could always change her mind regarding a career, since both her parents did!

Q: Tell us a little about your research in layman's terms.

My current research involves the influence of the biomechanical properties of the

cornea and sclera on the development and progression of disease, as well as the response to surgical intervention, particularly of the cornea. This crosses multiple boundaries within ophthalmology, including refractive surgery (ie., LASIK), glaucoma, keratoconus (a disease characterized by biomechanical decompensation of the cornea), and, more recently, how pressure inside the eye and pressure inside the head interact to cause damage or be protective from damage at the back of the eye.

Q: What new questions has your work raised?

My work was among the first to raise questions regarding the influence of

biomechanical properties in response to ablative refractive surgery. In other words, the cornea responds biomechanically to the change in structure generated by the removal of tension-bearing lamellae via laser ablation, and that response includes changing the surface shape. This affects vision and, therefore, the outcomes of LASIK or other refractive surgery.

Q: What motivates or inspires you?

I am motivated to figure out something that no one else knows yet. There is nothing more fun than discovery.

2012 BME Awards Picnic

On May 11, the Department of Biomedical Engineering held its Annual Awards Picnic, at Fred Beekman Park. Department faculty, staff, and students came together for good food, great conversation, and a fun but competitive game of volleyball. This annual event is organized and hosted by the Department of Biomedical Engineering and the Biomedical Engineering Society (BMES), Ohio State Chapter.

The highlight of this event is the awards ceremony. Awards are presented to undergraduate and graduate students in recognition for excellence in academics and leadership. In addition, *The Herman Weed Excellence in Teaching Award* is presented to one faculty member in recognition by his/her students of exemplary instruction and mentorship in service to students in the Department of Biomedical Engineering. This year's recipient was **Heather Powell**, PhD, assistant professor of BME and materials science engineering.

Additional 2012 award recipients are:

Undergraduate

Junior Outstanding Scholar Award – **Mitchell Romito**

Senior Outstanding Scholar Award – **Christopher Ahn**

Research Achievement Award – **Marcus Badgley**

Undergraduate Service Award – **Christopher Dooley**

Senior Leadership Award – **Brittany Shrefler**

Biomedical Engineering Society Scholarship Award –

Kedryn Marquart

Graduate

Graduate Service Award – **Caroline Haas**

Graduate Teaching Associate Award – **Joshua Hoffman**

Congratulations to all our accomplished recipients!

Andreas von Recum Award

This year the Department of Biomedical Engineering was excited to unveil a new award named in honor of the department's first appointed chair, Andreas F. von Recum, DVM, PhD, FBSE.

The Andreas F. von Recum Graduate Research Achievement Award recognizes excellence in research and investigative pursuits by a graduate student in the Department of Biomedical Engineering. This year's recipient was **Natalia Higueta-Castro**, PhD candidate in BME, advised by Samir Ghadiali, PhD, BME associate professor. BME was delighted to have Dr. von Recum in attendance to acknowledge and present the newly named award to this year's recipient at the Annual BME Awards Picnic.

Congratulations to Our Newest Alumni!

We congratulate all our graduating seniors and wish you the best of luck in your future endeavors!

CLASS OF WINTER 2012 Undergraduates

Scott Cukras – Broadview Heights, OH

Bradley Doepker – Findlay, OH

Gunter Eickert – Helena, OH

Kimberly Elliott – Cincinnati, OH

Douglas Follmer – Westerville, OH

Shubhra Kochar – New Delhi, India

Daniel Krakauer – Akron, OH

Lauren Levey – Cincinnati, OH

Jennifer Smith – Westlake, OH

Adam Zurmehly – Clarksburg, OH

Master's

Caroline Haas – Cleveland, OH

Edward Meier – Greenville, OH

Stephen Scurria – Dublin, OH

Maureen Weber – Dayton, OH

Doctorates

Shivraman Giri – Pune, India

Dissertation: "Cardiovascular

Magnetic Resonance

Techniques for Myocardial

Tissue Characterization in

Coronary Artery Disease"

Advisor: Orlando Simonetti

Hansong Zeng – Yancheng, China

Dissertation: "Bio-inspired

Inertial Sensors for Human

Body Motion Measurement"

Advisor: Yi Zhao

CLASS OF SPRING 2012 Undergraduates

Christopher Ahn – Oxford, OH

Nicholas Andersen – Katnoah, NY

Emily Breymaier – Maumee, OH

Christopher Dooley – Chester, OH

Andrew Dunn – Worthington, OH

Christopher Fechner – Cincinnati, OH

Shelby Fullen – Columbus, OH

Tyler Griffin – Powell, OH

Dustin Haidet – Alliance, OH

Jessica Ly – Columbus, OH

Joshua Mena – Gales Ferry, CT

Emily Moore – Urbana, OH

John O'Bryan – Wyoming, OH

Alexandra Randolph – Cincinnati, OH

Juan Rojo – El Paso, TX

Jill Sanders – Monclova, OH

Sarah Schloemer – Cincinnati, OH

Naseeb Shaheen – Canton, OH

Brittany Shrefler – Willoughby, OH

Austen Thomas – Dayton, OH

Sravya Vajapeyajula – North Olmstead, OH

Kristoffer Winks – Delaware, OH

Leanne Winslow – Mt. Vernon, OH

Master's

Taylor Ey – Charlotte, NC

Joseph Grodecki – Springboro, OH

Doctorates

Katharine Bluestein – Columbus, OH

Dissertation: "Inversion

Recovery Sequences for the

Detection of Cortical Lesions

in Multiple Sclerosis Using a

7 Tesla MR Imaging System"

Advisor: Petra Schmalbrock

Randy Giedt – St. Louis, MO

Dissertation: "Mitochondrial

Network Dynamics in

Vascular Endothelial Cells

Exposed to Mechanochemical

Stimuli: Experimental and

Mathematical Analysis"

Advisor: Rita Alevriadou

Sharon Schreiber – Columbus, OH

Dissertation: "Magnetic

Resonance Gradient Echo

Phase Imaging as a Means of

Detecting Alterations in the

Tissue Microarchitecture of

the Human Corpus Callosum"

Advisor: Bradley Clymer

CLASS OF SUMMER 2012 Undergraduates

Patrick Bradley – Bowling Green, OH

Lauren Cechini – Flemington, NJ

Michael Gosha – Cleveland, OH

Master's

Jessica Thomas – North Olmstead, OH

Samuel Ting – Bellevue, WA

Doctorates

Caroline Haas – Cleveland, OH

Dissertation: "Effect of

Massage-Like Compressive

Loading on Skeletal Muscle

Mechanical Properties"

Advisor: Thomas Best

Xiaoyue Ma – Jingmen, China

Dissertation: "Finite Element

Modeling of Collagen Fibers

in the Mechanical Interaction

Between Cells and the

Extracellular Matrix"

Advisor: Richard Hart

Spotlight on Students

2012 Capstone Design Showcase: Helping People with Disabilities

On May 24, the 5th Annual Engineering Capstone Design Showcase was held in the Archie M. Griffin East Ballroom at the Ohio Union. The showcase is a culmination of senior undergraduate capstone design projects from all engineering disciplines. Individual students or student teams presented their projects and selected findings to a team of judges comprised of industry and faculty.

The senior capstone design course in biomedical engineering is the culminating experience for students, and the yearlong design course provides all project teams with a real-world opportunity to solve an open-ended problem as identified by individuals with disabilities, or by community groups whose mission is to help those with disabilities. The overall goal of this program is to build a dynamic senior design program that fosters multidisciplinary efforts at the student, mentor, and university level, and promotes outreach to the disabled community.

Twenty-seven seniors on 10 teams, collaborating with students from multiple engineering and clinical departments, took part in the 2012 EEIC Engineering Capstone Design Showcase. The showcase consisted of five divisions: Chemical/Material Design, Equipment Design, Process Design, Product Design, and Socially Responsible Design. All 10 of the BME teams were placed in the Socially Responsible Design division, comprised of 11 teams. The BME

Xu Zhang – Selected to Enter 2012 Howard Hughes Medical Institute

Xu Zhang, a BME doctoral student advised by Yi Zhao, associate professor of BME, was selected to enter the 2012 Howard Hughes Medical Institute (HHMI) Med into Grad Scholars program, for his research, "Using Physical Exercise to Treat LV Hypertrophy and Heart Failure: A Microengineered Cellular Level Study." Xu is the second student in Dr. Zhao's lab to receive this honor.

The HHMI Med into Grad Scholars Program is to augment the biomedical applications of traditional basic science research to treat diseases. Scholars are expected to facilitate the sharing of information between basic scientists and clinicians. It also will increase their understanding of the language, culture, and practice of medicine, and develop the skills needed to form future partnerships and collaborations with physician scientists.

department senior design teams took 1st, 2nd, and 3rd places within their division.

1st Place: KAIR-Force: A Fully Adjustable Knee-Ankle-Foot Orthotic for Clinical Training and Diagnostic Use in Patients with T-6 or Below S

Students: Shubhra Kochar, BME; Lauren Levey, BME; Douglas Follmer, BME; Adam Zurmehly, BME

Faculty advisors: Mark Ruegsegger, David Lee

2nd Place: Equine Assisted Therapy

Students: Lauren Cechini, BME; Patrick Bradley, BME; Allyson Lang, ME; Kaitlyn Ricke, MOT; Michelle Prushing, MOT

Faculty advisors: Erin Hutter, Jane Case-Smith

3rd Place: Unilateral Upper Extremity Adaptation for Bowed Instruments

Students: Michelle DeBrosse, MOT; Andrew Dunn, BME; Tyler Griffin, BME; Brian Hawkins, ME; Jackson Maust, PT

Faculty Advisors: Theresa Berner, Sandra Metzler

The Department of Biomedical Engineering would like to commend these students for a job well done! We also would like to extend our thanks and appreciation to Mark Ruegsegger, clinical assistant professor and director of undergraduate studies in BME, and David Lee, BME laboratory supervisor.

(Majors: BME – Biomedical Engineering; ME – Mechanical Engineering; MOT – Master's Occupational Therapy; PT – Physical Therapy)

Kinshuk Mitra – Student Awarded Pelotonia Fellowship

Kinshuk Mitra, a current BME undergrad, was recently awarded a Pelotonia Fellowship. The Pelotonia Fellowship program is a one-year fellowship of \$12,000 with a possible second year of \$6,000. Its goal is to fund research that tackles cancer from the perspective of any discipline—from astronomy to zoology.

In addition to the Pelotonia Fellowship, Mitra also recently was awarded a one-year research scholarship. The College of Engineering scholarship is a one-year, \$2,000 award to complete research in an engineering discipline.

Colton J. Llyod

Colton J. Llyod, undergraduate BME junior, was awarded a Summer Honors Research Scholarship in the amount of \$2,800. Colton also was awarded a scholarship in the amount of \$6,000 by the Undergraduate Honors Committee at Ohio State to work on his honors thesis during his senior year. Rita Alevriadou, BME associate professor, is Colton's mentor and research advisor.

Junhua (Tom) Tang

Junhua (Tom) Tang, a BME doctoral student advised by Jun Liu, associate professor of BME, placed first in his category at the Ophthalmology Symposium at Ohio State. The 32nd Annual Ophthalmology Research Symposium was held June 15, 2012. Tom placed first in the graduate student category, and won a prize of \$500 for his research titled "Mapping Scleral Deformation During IOP Elevations Using High Resolution Ultrasound" (authors: Junhua Tang, MS; Richard Hart, BME professor and chair; Paul Weber, professor of ophthalmology; Cynthia Roberts, professor of BME and ophthalmology; and Jun Liu, BME associate professor). The attendees for the symposium include ophthalmologists, optometrists, medical students, residents, and graduate students.

Faculty Highlights

Gunjun Agarwal, associate professor, BME, was recently awarded a three-year, \$380,000 grant from the National Science Foundation for "Modulation of Macro and Micro Mechanics of ECM by DDR1," with co-investigators Gregory P. Lafyatis, associate professor, physics; Heather M. Powell, assistant professor, BME and materials science and engineering; and Peter M. Anderson, professor, materials science and engineering. The overall objective of this study is to measure and model how cells modulate structurally and mechanically altered extracellular matrices at the micro and macro scales.

Keith Gooch, associate professor, BME, was a 2012 Lumley Research Award recipient at the 15th Annual College of Engineering Faculty Awards. The Lumley Research Award recognizes research contributions of engineering faculty and research scientists.

Xiaoming (Shawn) He, associate professor, BME, was recognized at the American Cancer Society Grantee Recognition Reception as an American Cancer Society Research Scholar.

Thomas Hund, assistant professor, received a five-year, \$1.9 million grant from the National Institutes of Health for his research on the project titled "CaMKII-dependent regulation of cardiac excitability."

Douglass Kniss, professor, obstetrics and

gynecology and BME, was inducted into the College of Fellows AIMBE; elected to the board of trustees of Susquehanna University; and is incoming president of the Central Ohio Chapter of the Juvenile Diabetes Research Foundation for a two-year term.

Jun Liu, associate professor, BME, has been promoted to the rank of associate professor with tenure and was a 2012 Lumley Research Award recipient at the 15th Annual College of Engineering Faculty Awards. Awardees are selected based on their research accomplishments made during the five-year period prior to their nomination.

Heather Powell, assistant professor, BME and materials science and engineering, received the 2012 Distinguished Undergraduate Research Mentor Award in recognition of the leadership and support she provides to undergraduate students.

Powell also was awarded a five-year, \$1.3 million grant from the Shriners Hospitals for Children Research Foundation for her research, "Compression garments: understanding mechanical regulation of scar development," along with her co-investigators Chandan K. Sen, PhD, associate dean for translational and applied Research, and Dorothy Supp, PhD, adjunct research associate professor at the University of Cincinnati.

Mark Ruegsegger, clinical assistant professor and director of undergraduate studies, BME, has received a five-year, \$179,000 grant from the National Institute of Child Health and Human Development (NICHD), for the project, "Multidisciplinary design projects with outreach to persons with disabilities," with co-PI Robert Siston, assistant professor, mechanical engineering. This newly awarded grant will help expand the scope of the current capstone design course.

Jessica Winter, assistant professor, chemical and biomolecular engineering and biomedical engineering, was awarded \$330,000 from the NSF Biomaterials Program for her research, "Micellular Electrospray Synthesis of Magnetic Quantum Dots," with co-investigators Barbara Wyslouzil, professor, chemical and biomolecular engineering and chemistry; and Jeffrey Chalmers, professor, chemical and biomolecular engineering and director of the Cytometry Shared Resource. In addition, Dr. Winter was the advisor to a student team that placed first in the Fisher College of Business 2012 Ohio State University Business Plan Competition, which included prizes worth \$84,000.

Yi Zhao, professor, BME, was promoted to the rank of associate professor with tenure.

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Department of Biomedical Engineering
Bevis Hall, Suite 270
1000 Carmack Road
The Ohio State University
Columbus, OH 43210-7002

