

THE UNIVERSITY OF MEMPHIS &  
THE UNIVERSITY OF TENNESSEE HEALTH SCIENCE  
CENTER

*PRESENT...*

# BIOMATERIALS DAY

*FRIDAY, MARCH 2ND, 2018*

# CONFERENCE PROGRAM

HOSTED AT THE

FEDEX INSTITUTE OF TECHNOLOGY



**PRESENT. NETWORK. LEARN.**

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# BIOMATERIALS DAY SPONSORS

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# WELCOME TO BIOMATERIALS DAY 2018!

DEAR PARTICIPANTS,

It is my distinct pleasure to welcome you to Biomaterials Day 2018 hosted at the University of Memphis in the FedEx Institute of Technology! The theme for the meeting this year is **"Lifelong Learning Along the Journey to Success."**

This conference aims to provide a platform for researchers of all levels of experience to present their work, offer invaluable networking opportunities among students, faculty, and professionals, and encourage the next generation of researchers and industry specialists.

Over the past several months, the Planning Committee and I have worked diligently to bring together this program. We have brought in oral and poster presenters from every STEM field to share their work in the interdisciplinary scope of biomaterials science. Additionally, we have been graced with panelists with decades worth of experience, not limited to only academia and research, but also in industry and entrepreneurial development. With our collective goal in mind, we also wish to impress upon new researchers the value of education and professionalism through our education outreach and strategies panel and our professional development workshop.

None of this would be possible without the generous support of local industry, faculty, and students. I personally wish to thank the Society of Biomaterials for providing the grant possible for the symposium, Medtronic and the FedEx Institute for providing a plethora of resources for us to share with our participants, and lastly the Planning Committee, which consists of Kasyap Cherukuri, Mike Harris, Leslie Pace, Kevin Patel, Priya Murali, Dr. Bumgardner, and Dr. Jennings, for their commitment and dedication to the conference.

We are fortunate to be in the beautiful City of Memphis, where creativity thrives and opportunities are boundless. I hope you all take away something positive from today, and I trust you will do your part in paving the way for a brighter future for those who follow us.

Warmest Regards,

David LeVine

Society for Biomaterials | UofM Chapter President

Biomaterials Day 2018 | Conference Planning Committee Chair

# SCHEDULE

## MORNING

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**8:30 AM - 8:55 AM**

REGISTRATION

*Main Lobby*

**9:00 AM - 9:10 AM**

OPENING REMARKS

*"The Zone"*

**9:15 AM - 10:00 AM**

KEYNOTE SPEAKER

DR. PINCHUK

*"The Zone"*

**10:10 AM - 12:00 PM**

ORAL PRESENTATIONS

*Methodist*

*Presentation Theater & Room*

*226*

## AFTERNOON

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**12:10 PM - 1:20 PM**

LUNCH & NETWORKING

SESSION *Main Lobby*

**1:30 PM - 2:20 PM**

STEM EDUCATION

PANEL

*Methodist Presentation*

*Theater*

**2:30 PM - 4:00 PM**

ENTREPRENEURSHIP &

INDUSTRY PANEL

*"The Zone"*

**4:15 PM - 5:15 PM**

POSTER PRESENTATION

SESSION

*"The Fish Bowl" Second Floor*

**5:20 PM - 6:00 PM**

CLOSING CEREMONY

*"The Zone"*

# GENERAL INFORMATION

## **PARKING:**

Parking is provided at the low rate of \$6 for all attendees at the garage on Innovation Drive. Parking passes will be given to any registered attendee upon proof of registration when entering the garage by an attendee.

## **POSTER PRESENTATIONS:**

Poster presentations will be held in the "Fish Bowl" on the second floor of the F.I.T. Presenters are expected to be present next to their posters during the scheduled times, 4:15 pm - 5:15 pm, to discuss their topics with other attendees and judges.

## **ORAL PRESENTATIONS:**

Oral Presentations will be split among two rooms, the Methodist Presentation Theater and Room 226. More information about the research topics can be found on pages 10 - 11. Please be respectful and kind during and after the presentations.

## **REGISTRATION:**

Registration is mandatory for all attending the event and is free for all students. Registration includes coffee and breakfast pastries, a seat for the Keynote Address by Dr. Len Pinchuk, tea and water all day, the lunch buffet, access to the Professional Development Workshop, a seat for the STEM Education and Industry/Entrepreneurship panels, various presentations of student and industry/professional research, and endless networking opportunities among colleagues. Name tags will be available upon check-in and validation of your registration. Check-In will be done in the Main Lobby of the F.I.T.

## **PANELS:**

Panels will be held in the afternoon in the Methodist Presentation Theater and "The Zone." Both rooms are located on the first floor with "The Zone" having a secondary entrance on the second floor. Please make sure all cell phones are silenced.

## **WIRELESS INTERNET ACCESS:**

Wireless internet for all guests can be accessed free of charge through "uofm-guest" anywhere on-campus. Directions for connection will be provided in the web browser upon connection.

## **FOOD:**

In the morning, coffee, water, and tea will be available for consumption along with an assorted display of pastries and other breakfast treats. Starting from 12:10 pm - 1:20 pm, lunch will be served in a buffet style located in the Main Lobby of the F.I.T. The menu is "chef's choice" which will include a meat, two starches, a variety of breads, and assorted desserts. There will be vegetable lasagna available for all of our vegetarian guests. Tea and water will be served for the remainder of the time at the conference. If you have any other dietary restrictions, please let the Planning Committee know.

## **PROFESSIONAL DEVELOPMENT WORKSHOP**

**10:00 AM - 12:00 PM**

*DIGITAL MEDIA ROOM (THIRD FLOOR)*



**MS. MEREDITH POWERS**



**MS. SHELIA MOSES**

This featured workshop was created to help young professionals as they develop their personal image both on paper and in person. We will have two career development specialists who will walk guests through tips and strategies for LinkedIn, Interviews, and Resumes/CVs. Ms. Meredith Powers, the Associate Director of Communications and Outreach for the Herff College of Engineering, and Ms. Shelia Moses, the Academic Services Coordinator for the Dean of the Herff College of Engineering, will be there to offer their expertise.

# KEYNOTE SPEAKER

## DR. LEN PINCHUK



Dr. Leonard Pinchuk has been diagnosed as a serial entrepreneur and serial inventor. He has founded or incubated 10 companies and has 112 issued U.S. patents.

Based in Miami, Florida, Dr. Pinchuk founded Innovia LLC in 2002, which has since incubated and spun off eight new companies. He currently spends most of his time working in the field of glaucoma and nurturing a new company in the genetic engineering space.

He is a member of AIMBE, a member of the National Academy of Engineering and the recipient of the Greater Miami Chamber of Commerce Health Care Heroes Award. Dr. Pinchuk also enjoys an appointment as Distinguished Research Professor of Biomedical Engineering at the University of Miami.

**Source:** <http://www.leonardpinchuk.com/about.html>

### **“Behind the Lab Coat: The Key Biomaterials that led to Interventional Cardiology and Interventional Glaucoma”**

Dr. Pinchuk and his teams developed and patented double-stretch blow-molded Nylon 12 which provided high strength angioplasty balloons with extremely thin walls, low deflation profiles, excellent maneuverability, toughness and the ability to precisely control the expansion of vessels. Cordis Corporation purchased these patents which enabled them to establish and dominate the interventional market for decades. When it was found that angioplasty failed 40% of the time, the team developed various stents to prop the vessel open. These stents led to the first endoluminal grafts that were assembled in the abdominal aorta and served to bypass aortic aneurysms. When the materials comprising stent-grafts were shown to degrade, Dr. Pinchuk and his team patented the ultra-stable poly(styrene-block-isobutylene-block-styrene) (SIBS) material for medical applications which became the cornerstone for Boston Scientific's drug eluting stent; TAXUS, which dropped the restenosis rate to low single digits. These medical devices became the most important devices used in interventional cardiology with over 100 million patients benefiting with an economic impact exceeding \$100 billion. Dr. Pinchuk, with other engineers and scientists then brought this novel SIBS polymer into ophthalmology and helped establish the field of interventional glaucoma which is in the processes of transforming the treatment paradigm for this blinding disease. The talk will include the aforementioned technology along with the roller-coaster ride of entrepreneurship.



# STEM EDUCATION PANEL

The STEM Education Panel is aimed towards familiarizing viewers with different methods and strategies for educational development and outreach within STEM fields. Our panelists feature Dr. Ivey of the West TN Stem Hub and Dr. Simpson of Mississippi State.



## DR. STEPHANIE IVEY

Dr. Stephanie Ivey is the Associate Dean for Research for the Herff College of Engineering and a Professor with the Department of Civil Engineering at the University of Memphis. She also directs the Intermodal Freight Transportation Institute and the Southeast Transportation Workforce Center. Her research includes focus on community livability and transportation planning and policy. She is the Project Director for the West Tennessee STEM Hub, a regional K-12 outreach initiative. Dr. Ivey also has a lengthy and nationally recognized research record focused on STEM and transportation education and workforce issues. She is a member of the Tennessee STEM Leadership Council and the Federal Reserve Bank of St. Louis Transportation Industry Council. She serves as faculty advisor for the University of Memphis student chapters of WTS and the Institute of Transportation Engineers and is a member of the Executive Committee of the ITE Transportation Education Council.



## DR. LASHAN SIMPSON

Dr. Simpson received her Ph.D. from Clemson University advised by Dr. Naren Vyavahare. Her research interests were in targeted therapies and she strengthened her polymer expertise during her postdoctoral training at Rice University under the advisement of Dr. Jennifer West. Her postdoctoral work focused on injectable gene therapy for bone grafting. As an independent researcher, her work is focused on vascular calcification and related co-morbidities including end stage renal disease. She is developing therapies to maintain serum mineral balance in kidney disease patients and to prevent vascular calcification. She is also focused on understanding the phenomenon of phenotypic switching of native smooth muscle cells into osteoblast-like cells in calcified arteries and developing intervention therapies to prevent this switch. She began her faculty position at Mississippi State University in 2013. In addition, Dr. Simpson is passionate about engineering education, STEM inclusion, and K-12 outreach.



# INDUSTRY & ENTREPRENEURSHIP PANEL

This combined panel aims to educate participants on the differences between academia and industry within the scope of start-up companies to well-established medical device companies. It also focuses on how to develop and market a potential device and other strategies for maintaining relevance on the market. Our featured panelists, along with our **Keynote Speaker Dr. Pinchuk**, include industry professionals, venture capitalists, and serial inventors.

## MIKE SHERMAN

Mike has nearly 30-years of experience in the medical device industry having spent 20 years in orthopedic product development rising from a product development engineer to an executive leadership position responsible for driving new technology into the spine industry's largest company. He created and led Medtronic Spine's new technology development group which combined product development of next generation technologies and a business development effort for the division. From there, Mike spent 9 years as a medical device, venture capitalist focused at identifying and building a diverse portfolio of early stage device and technology companies to grow and adapt to ever changing market conditions. Recently Mike was named President & CEO of MB Innovations, a Memphis based consulting firm.



## STAN OLSON

Stan has over 35 years of experience in medical devices and biomaterials; principally serving orthopedic, neurosurgical, endovascular, and oncological indications. He has served both executive and consultant roles in ideation, innovation, commercialization, business development, and M&A initiatives; with two IPOs. Faculty roles have included entrepreneurship, strategy, tactics, game theory, and biomedical engineering. Clientele included: Johnson and Johnson, DePuy Synthes, Stryker, Medtronic, Boston Scientific, etc.



# INDUSTRY & ENTREPRENEURSHIP PANEL

## JEFF SCIFERT, PhD



Dr. Jeff Scifert received his BS in Interdisciplinary Engineering (Biomedical) from Purdue University in 1994 and his doctorate in Biomedical Engineering with a focus on spinal biomechanics from the University of Iowa in 2000. He began work as a product development engineer at Medtronic Spine since 2000 and is currently a S. Engineering Program Manager in the Biologics division of Medtronic Spine. He has worked on a variety of products and platforms over the past 17+ years, including launching and developing products in the following areas: synthetic bone void filler platforms, various instrument and delivery platforms, post-operative pain platforms, and the Infuse<sup>®</sup> Bone Graft Platform. He has over 35+ issued and pending patents, and 40+ publications and abstracts. He is currently a member of the Biologics R&D leadership team and is responsible for technology assessment and management and internal process management activities, as well as activities related to product development for the Biologics division.

## JOHN WARMATH, PhD



John has a passion for innovation in healthcare, specifically in the areas of unique technologies and business models. He leads the business development (BD) activities for Wright Medical and has participated in numerous M&A transactions totaling over \$4.2B.

John has spent a significant amount of time focused on the transformation of Wright's International business, both as a member of the BD and international Commercial teams. He has led and managed transactions in multiple countries, including: France, Australia and the UK.

John earned a Bachelor of Science in Mechanical Engineering from Tennessee Technological University and a Ph.D. in Biomedical Engineering and an MBA, both from Vanderbilt University.

## JOSH HERWIG - MODERATOR



Josh is the Co-Founder, and lead development engineer at SOMAVAC Medical Solutions. His education is in Mechanical Engineering (Tennessee Tech University) and Biomedical Engineering and is a graduate of the University of Memphis, UTHSC Joint Biomedical Engineering Program (M.S.). His professional background includes industrial automation design and automotive manufacturing engineering. In 2016, in lieu of pursuing a PhD in biomedical engineering, he co-founded SOMAVAC Medical Solutions with Dr. Esra Roan, with the aim of solving overlooked needs in the post-surgical recovery environment. To date, they have successfully raised over \$1M, and their first product is expected to launch in August of this year, pending FDA clearance.

## PANELIST INFORMATION

# ORAL PRESENTATIONS

## ***METHODIST PRESENTATION THEATER***

### **10:10 AM - 10:40 AM**

"QUANTIFICATION OF NANO- TO SUB-MICRON SCALE INTRACELLULAR STRUCTURAL ALTERATIONS IN BIOLOGICAL MATERIALS: APPLICATION IN CANCER DIAGNOSIS"

**HUDA M. ALMABADI, DR. PRABHAKAR PRADHAN, DR. EUGENE ECKSTEIN**  
Physics & Materials Science, University of Memphis, Memphis, TN

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### **10:40 AM - 10:55 AM**

"BMP-2-DERIVED PEPTIDES WITH POLYGLUTAMATE DOMAINS ANCHOR ONTO BONE GRAFT MATERIALS"

**ANDREW S. CURRY, NICHOLAS W. PENZA, JENNIFER L. BAIN, MICHAEL S. REDDY, SUSAN L. BELLIS**  
BME, University of Alabama at Birmingham, Birmingham, AL

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### **10:55 AM - 11:10 AM**

"BIOMIMETIC COLLAGEN LAMININ-111 SPONGES PROMOTE MYOGENIC REGENERATION IN A MURINE VOLUMETRIC MUSCLE LOSS WOUNDING MODEL"

**ANDREW DUNN, G. HAAS, M. MARCINCYK, M. TALOVIC, R. SCHEIDT, A. PATEL, M. SCHWARTZ, K. R. HIXON, H. ELMASHHADY, S. H. McBRIDE-GAGYI, S. A. SELL, K. GARD**  
BME, St. Louis University, St. Louis, MO

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### **11:10 AM - 11:25 AM**

"RASPBERRY KETONE DELIVERY FROM ELECTROSPUN CHITOSAN MEMBRANES"

**FRENANDA GUERRA, Ph.D, JOEL D. BUMGARDNER, PAUL CAMERON, VISHNU MURALI**  
BME, University of Memphis, Memphis, TN

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### **11:25 AM - 12:00 PM**

"AN OVERVIEW ON THE ROLES OF BIOMATERIALS USE IN BIOHORIZONS' PRODUCTS AND THE DENTAL INDUSTRY"

**PATRICK BARTON**  
BioHorizons, Birmingham, AL

# ORAL PRESENTATIONS

## ROOM 226

### 10:10 AM - 10:25 AM

"UNDERSTANDING MECHANISMS INVOLVED IN CARDIOVASCULAR CALCIFICATION THROUGH THE MATHEMATICAL MODELING OF THE CANONICAL WNT SIGNALING PATHWAY"

**JOHN TYSON, C. LASHAN SIMPSON**

Agricultural & Biomedical engineering,  
Mississippi State University, Starkville, MS

### 10:40 AM - 10:55 AM

"EFFECTS OF PROTONATION AND SALT CONCENTRATION ON THE STRUCTURE OF A POLYETHYLENIMINE (PEI) IN WATER"

**CALEB GALLOPS, DR. YONGMEI WANG, DR. JESSE ZIEBARTH, CHANG YU**

Chemistry, University of Memphis, Memphis, TN

### 11:10 AM - 11:25 PM

"TARGETED NANOPARTICLES FOR DELIVERY OF siRNA TO SITES OF EARLY ONSET POST-TRAUMATIC OSTEOARTHRITIS"

**SEAN K. BEDINGFIELD, FANG YU, DANIELLE D. LIU, HONGSIK CHO, KAREN A. HASTY, CRAIG L. DUVALL**

Physics and Materials Science, University of Memphis, Memphis, TN

### 10:25 AM - 10:40 AM

"THE BINDING AND AGGREGATION OF ANISOTROPIC NANOPARTICLES ON CYLINDRICAL LIPID MEMBRANES"

**ANDREW D. OLINGER, ERIC SPANGLER, P.B.**

SUNIL KUMAR, MOHAMED LARADJI

Physics and Materials Science, University of Memphis, Memphis, TN

### 10:55 AM - 11:10 AM

"INTRACELLULAR BIOLOGIC DRUG BIO-ACTIVITY CORRELATES TO ENDOSOMAL DISRUPTION AS MEASURE BY Gal8 RECRUITMENT"

**KAMERON V. KILCHRIST, S. C. DIMOBI, T. A. WERFEL, E. A. DAILING, M. A. JACKSON, I.B. KELLY, C. L. DUVALL**

BME, Vanderbilt University, Nashville, TN

### 11:25 AM - 11:40 PM

"CHARACTERIZATION METHOD OF NOVEL TARGETED NANOSOMES FOR DETECTION OF OSTEOARTHRITIC CARTILAGE"

**FAZAL BHATTI, Ph.D, HONGSIK CHO, Ph.D, JOHN STUART, Ph.D, KAREN A. HASTY, Ph.D**

Department of Orthopaedic Surgery & Biomedical Engineering, University of Tennessee Health Science Center, Memphis, TN

# POSTER PRESENTATIONS

## ***"FISH BOWL" SECOND FLOOR***

**"AN INVESTIGATION OF CHITOSAN THERMO-GELS FOR LOCAL ANTIBIOTIC DELIVERY"**

**SAMER ABDULAH**, LESLIE PACE, J. AMBER JENNINGS Ph.D  
BME, University of Memphis, Memphis, TN

**"CHITOSAN COMPOSITE COATING FOR BONE GROWTH IN MUSCULOSKELETAL IMPLANTS"**

**BRANDICO BARR**, J. AMBER JENNINGS Ph.D  
BME, University of Memphis, Memphis, TN

**"EFFECTS OF RASPBERRY KETONE-LOADED CHITOSAN MEMBRANES ON SAOS-2 CELL GROWTH"**

**PAUL CAMERON**, JOEL BUMGARDNER Ph.D  
BME, University of Memphis, Memphis, TN

**"ANTIBIOTICS ELUTION AND CYTOCOMPATIBILITY OF CHITOSAN DERIVATIVE PASTE FOR PERIPROSTHETIC JOINT INFECTION"**

**LANDON R. CHOI**, LOGAN R. BOLES, J. AMBER JENNINGS Ph.D  
BME, University of Memphis, Memphis, TN

**"LONG-TERM EFFECTS OF VITAMIN E ON FREE RADICALS BEHAVIOR AND THERMOLUMINESCENCE PROPERTIES OF MEDICAL-GRADE UHMWPE"**

**SAGHAR GOMROK**, MUHAMMAD SHAH JAHAN, PhD  
Physics and Materials Science, UofM, Memphis, TN

**"COMPARATIVE ANTIMICROBIAL ACTIVITY OF COMMERCIALY AVAILABLE VETERINARY WOUND CARE SPRAYS"**

**RUHKSANA AWAIS**, J. AMBER JENNINGS Ph.D, BRANDICO BARR  
BME, University of Memphis, Memphis, TN

**"EVALUATION OF LYOPHILIZED CHITOSAN DERIVATIVES FOR DEGRADABLE ANTIMICROBIAL DELIVERY"**

**LOGAN BOLES**, J. AMBER JENNINGS Ph.D  
BME, University of Memphis, Memphis, TN

**"CONTROLLING AND CREATING NOVEL BIOACTIVE IMPLANT MATERIAL SURFACES VIA ELECTROSPRAY ADDITIVE MANUFACTURING"**

**EWE JIUN CHNG**, K. PATEL, C. CHATTMAN, J.D. BUMGARDNER Ph.D, R. GOPALAKRISHNAN  
BME, University of Memphis, Memphis, TN

**"OPTIMIZING MANNOSE CONJUGATION TO POLYMERIC NANOPARTICLES FOR TARGETED DELIVERY TO TUMOR ASSOCIATED MACROPHAGES IN BREAST CANCER"**

**EVAN GLASS**, TODD GIORGIO, Ph.D, SHIRIN MASJEDI, Ph.D, STEPHANIE DUDZINSKI  
BME, Vanderbilt University, Nashville, TN

**"3D PRINTING A PERFUSION BIOREACTOR SYSTEM OF OPTIMAL CELL INFILTRATION INTO CRYOGELS"**

**HUGO GONZALEZ**, KATHERINE HIXON, SCOTT A. SELL  
BME, St. Louis University, St. Louis, MO



# POSTER PRESENTATIONS

## ***"FISH BOWL" SECOND FLOOR***

**"DEVELOPMENT OF A POLYMICROBIAL MURINE MODEL OF PERIPROSTHETIC JOINT INFECTION"**

**MICHAEL HARRIS**, LESLIE PACE, KAREN BEENKEN, Ph.D, MARK SMELTZER, Ph.D, J. AMBER JENNINGS Ph.D  
BME, University of Memphis, Memphis, TN

**"WEAR OF A STABILIZED CROSSLINKED UHMWPE TOTAL ANKLE REPLACEMENT"**

**AMY KOURY**, NATE WEBB, JESSE FLEMING, DOUG LINTON, JON MOSELEY  
Wright Medical Technology, Memphis, TN

**"MAGNETIC CHITOSAN MICROBEADS FOR USE AS A LOCAL DRUG DELIVERY SYSTEM"**

**DAVID LEVINE**, J. AMBER JENNINGS, Ph.D, JOEL BUMGARDNER Ph.D, WARREN HAGGARD, Ph.D  
BME, University of Memphis, Memphis, TN

**"ALGINATE HYDROGELS AS AN INJECTABLE CELL DELIVERY SYSTEM"**

**VIRGINIA MULLINS**, C. LASHAN SIMPSON Ph.D  
Agricultural & Biological Engineering, Mississippi State University, Starkville, MS

**"TOBRAMYCIN AND WATER CONTENT EFFECTS ON SET TIME FOR TRI-PHASIC BONE VOID FILLER"**

**LESLIE PACE**, J. AMBER JENNINGS, Ph.D  
BME, University of Memphis, Memphis, TN

**"COMPARISON OF ELUTION OF ANTIBIOTICS FROM MANUALLY APPLIED AND SPRAY DEPOSITED PHOSPHATIDYL CHOLINE COATINGS"**

**ZOE HARRISON**, R. AWAIS, R. GOPALAKRISHNAN, Ph.D, J. A. JENNINGS Ph.D  
BME, University of Memphis, Memphis, TN

**"MOLECULAR DETECTION AND ANALYSIS OF EXOSOMES USING SURFACE-ENHANCED RAMAN SCATTERING GOLD NANORODS AND MINIATURIZED DEVICE"**

**ELYAHB ALLIE KWIZERA**, X. HUANG, Ph.D, R. O'CONNOR, V. VINDUSKA, M. WILLIAMS, E. R. BUTCH et al  
Chemistry, University of Memphis, Memphis, TN

**"MANIPULATION AIR-GAP ELECTROSPINNING TO CREATE POLYMER NANOFIBER-WRAPPED GLASS MICROFIBERS FOR REGENERATING CRITICAL SIZE BONE DEFECTS OF CORTICAL BONE"**

**HOUSTON LINDER**, AUSTIN GLASS, SCOTT SELL  
BME, St. Louis University, St. Louis, MO

**"INCORPORATING MICROFLUIDIC-FABRICATED ALGINATE NANOPARTICLES INTO AN ELECTROSPUN SCAFFOLD FOR CHRONIC WOUND HEALING APPLICATIONS"**

**WILLIAM J. ONA**, XORGE A. HERNANDEZ, BENJAMIN T. MEHL, ROBERT S. MARTICN, SCOTT A. SELL  
BME, St. Louis University, St. Louis, MO

**"EVALUATION OF TWO DIFFERENT NEUTRALIZATION METHODS FOR CHITOSAN COATINGS"**

**KEVIN PATEL**, JOEL D. BUMGARDNER, Ph.D  
BME, University of Memphis, Memphis, TN



# POSTER PRESENTATIONS

## ***"FISH BOWL" SECOND FLOOR***

"GRAFT DELIVERY OF VEGF MIMETIC PEPTIDES TO INDUCE ANGIOGENESIS WITHIN A BONE INJURY SITE"

**NICHOLAS L PENZA, SUSAN L BELLIS, ANDY S CURRY, MICHAEL S REDDY**  
BME, University of Alabama Birmingham, AL

"MEMBRANE MEDIATED COOPERATIVE BEHAVIOR OF SPHERICAL NANOPARTICLES"

**ERIC SPANGLER, MOHAMED LARADJI, SUNIL P.B. KUMAR**  
BME, University of Memphis, Memphis, TN

"IMPROVING THE REFERENCE ELECTRODE IN BLOOD ANALYZERS"

**GAUTAM THAMIZHARASAN, ERNO LINDNER, Ph.D, MARCIN GUZINSKI, Ph.D**  
BME, University of Memphis, Memphis, TN

"CHITOSAN-BASED MICROPARTICLES AS LOCAL DELIVERY DEVICES"

**CARLOS M WELLS, J. AMBER JENNINGS, Ph.D**  
BME, University of Memphis, Memphis, TN

"PC-12 CELL ADHESION AND DIFFERENTIATION ON CARBON AEROGEL SCAFFOLD"

**MARTINA RODRIGUEZ SALA, FIROUZEH SABRI, Ph.D**  
Physics and Materials Science, University of Memphis, Memphis, TN

"IN VITRO RAW 264.7 MONOCYTE BIOCOMPATIBILITY OF CASTING FILM AND ELECTROSPUN CHITOSAN MEMBRANES TREATED BY TWO METHODS"

**HENGJIE SU, JOEL. D. BUMGARDNER, Ph.D**  
BME, University of Memphis, Memphis, TN

"EFFECTS OF KINEMATICS ON THE SURFACE WEAR SCARRING AND WEAR DEBRIS IN A TOTAL ANKLE REPLACEMENT"

**NATE WEBB, JESSE FLEMING, DOUG LINTON, JON MOSELEY**  
Wright Medical Technology, Memphis, TN

# SPECIAL THANKS TO THE PLANNING COMMITTEE



**DAVID LEVINE** -  
SENIOR UNDERGRADUATE  
BME, PLANNING COMMIT-  
TEE CHAIR & FUNDRAISING  
COORDINATOR



**KASYAP CHERUKURI** -  
SOPHOMORE UNDERGRADUATE  
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VICE CHAIR & DIRECTOR OF  
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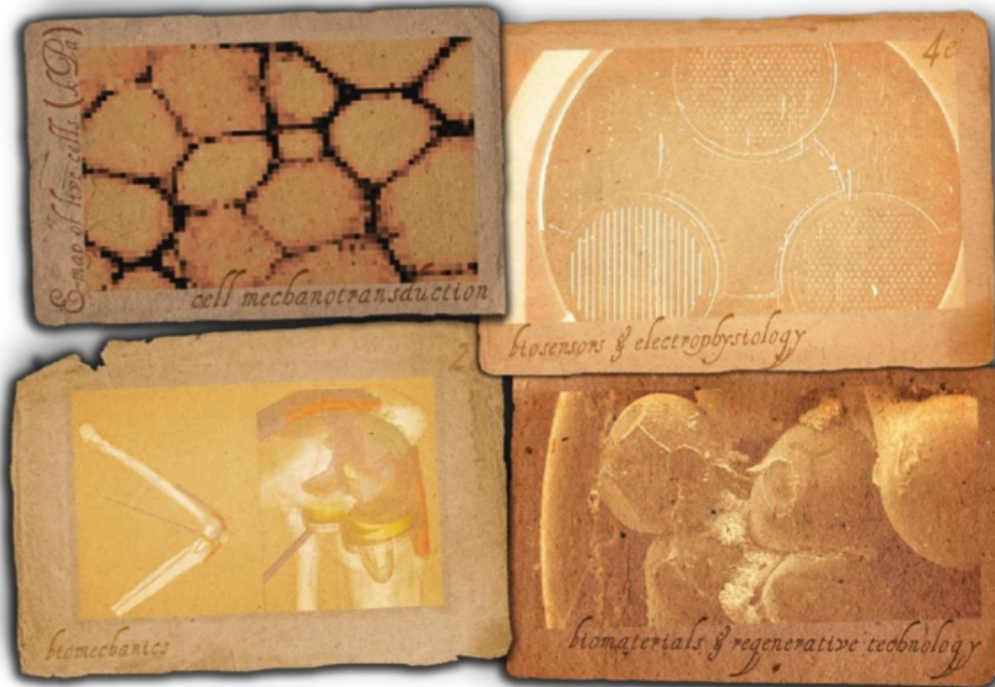


**DR. JESSICA AMBER  
JENNINGS** -  
BME FACULTY SPONSOR  
& ADVISOR



**DR. JOEL  
BUMGARDNER** - BME  
FACULTY SPONSOR &  
ADVISOR

# GRADUATE PROGRAM ANNOUNCEMENT



## University of Memphis & University of Tennessee Health Science Center Joint Graduate Program in Biomedical Engineering

The UM/UT joint graduate program in biomedical engineering offers master's of science (thesis and project options) and doctoral degrees.

A Bachelor of Science in Biomedical Engineering degree is offered through the University of Memphis Herff College of Engineering. The program stresses the application of engineering and physical science to biomedical problems, including research and development of new technologies. Life science, applied mathematics and engineering comprise the core curriculum.

This program provides science and technology for the world and provides our students excellent opportunities for research and employment.

The program includes four areas of emphasis: biomechanics, biosensors and electrophysiology, biomaterials and regenerative technology, and bioimaging.

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Director of Graduate Studies for UT BME, University of Tennessee, Memphis, 956 Court Avenue Suite E226, Memphis, Tennessee 38163, phone: (901) 448-7099, fax: (901) 448-7387, [rsmith@uthsc.edu](mailto:rsmith@uthsc.edu).

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UOM144-FY1112/2C



# NOTES

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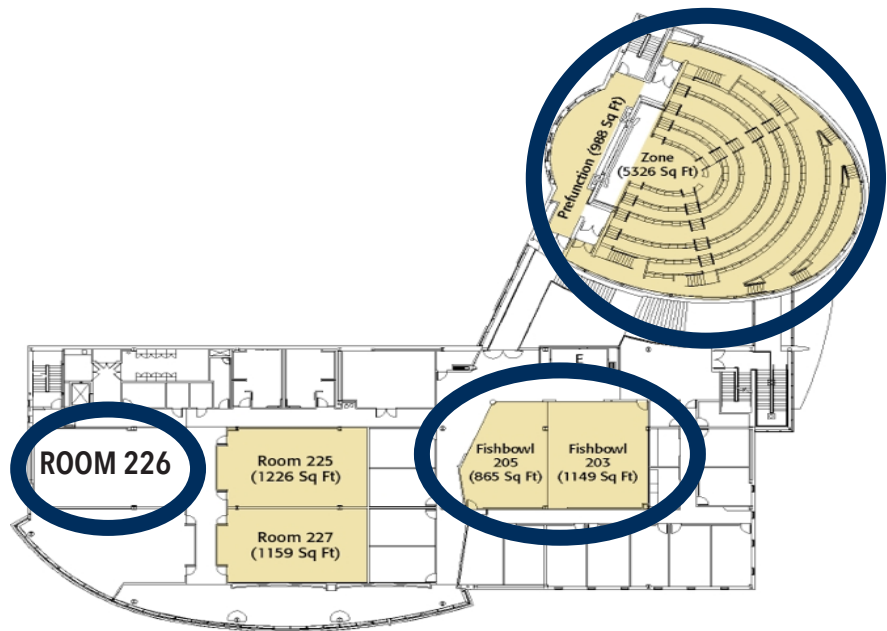
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# FEDEX INSTITUTE OF TECHNOLOGY MAP

## FIRST FLOOR



## SECOND FLOOR



## THIRD FLOOR

