

# KRISTI ANSETH

PhD

*keynote*



Tisone Professor and  
Distinguished Professor

University of Colorado

Boulder, CO



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## BIO

Dr. Anseth's research group is interested in the development of polymeric biomaterials that can interface with cells and promote tissue regeneration and repair. From a fundamental perspective, they seek to decipher the critical extracellular matrix (ECM) signals that are relevant for tissue development, regeneration, and disease and then design materials that integrate these signals. From an applied perspective, they use this knowledge to engineer materials that can promote tissue regeneration in vitro and in vivo. Dr. Anseth's talk will illustrate their recent efforts towards the synthesis of new hydrogel chemistries for 4D cell culture and regenerative medicine, and how one can dynamically control biochemical and biophysical properties through orthogonal, photochemical click reaction mechanisms. Some specific examples will include the design of hydrogels that promote musculoskeletal tissue regeneration, materials-directed growth of intestinal organoids from a single stem cell, and super-swelling matrices to visualize cell-matrix interactions with unprecedented resolution. These efforts will then be placed in the broader context of designing precision biomaterials to address demands for patient specific products and treatments.

## TALK TITLE

“Engineering Bioresponsive and Adaptable Materials for Regenerative Medicine”

# KAREEM AZAB

## PhD

*session 4*



## BIO

Dr. Azab earned Pharmacy degree, M.Sc. in Medicinal Chemistry and Ph.D. in Pharmaceutical Sciences, from The Hebrew University of Jerusalem, focusing on development of novel drug delivery systems for targeted delivery of chemo and radiotherapy. In addition, he completed his post-doctoral training Harvard Medical School/ Dana-Farber Cancer Institute, studying cancer cell biology and immunology, focusing on tumor micro-environment. The research in Dr. Azab's Lab has a multi-disciplinary translational approach, involving pharmaceutical sciences, medicinal chemistry, cancer biology, immunotherapy, and tissue engineering. He specializes in development of drug delivery systems to improve the specificity and efficacy of cancer therapy; and has special interest in the role of tumor microenvironment in drug resistance, and metastasis. He also focuses on development of ex vivo 3D tissue engineered cancer models for drug development and personalized medicine. Dr. Azab has co-authored over 100 peer-reviewed papers, and mentored over 50 trainees (Post-doctoral, PhD, MSc and Undergraduate Students), and his research was translated into 5 clinical trials, 15 patents, and 4 start-up companies.

## TALK TITLE

“3D Tissue-Engineered Bone Marrow Model as a Tool to Predict Therapeutic Efficacy in Cancer Patient Response ”

Associate Professor

Radiation Oncology - Div.  
of Cancer Biology,  
Department of Radiation  
Oncology  
Biomedical Engineering  
Washington University

Adjunct Clinical Instructor  
and Preceptor at Saint Louis  
College of Pharmacy.  
Founder and CSO at Cellatrix  
LLC; Founder at Targeted  
Therapeutics LLC  
Co-Founder of CovACE  
Nanotechnology LLC  
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# DAVID BROGAN

## MD, PhD

*session 3*



Assistant Professor  
Washington University  
St. Louis, MO



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## BIO

Dr. David Brogan is an Assistant Professor of Orthopedic Hand and Microsurgery at Washington University in St. Louis. A native of Texas, he completed his undergraduate studies in Biomedical Engineering at Vanderbilt University in Nashville, TN. After graduation, he was awarded a Marshall Scholarship from the British Parliament to study for an MSc in Medical Engineering and Physics at King's College London, followed by an MSc in International Health Policy at the London School of Economics. He then went on to obtain his MD at Washington University in St. Louis, followed by training in Orthopedic Surgery at the Mayo Clinic and fellowship training in Hand Surgery at Duke University. In his current role at Washington University, his clinical practice focuses on care and reconstruction of mangled limbs, as well as brachial plexus reconstruction. He runs the Orthopedic Nerve Research Lab in collaboration with Dr. Christopher Dy and has funding as a Co-investigator on multiple grants, including the US Department of Defense and National Institutes of Health. His research focuses on functional nerve imaging as well as modulation of molecular pathways to inhibit Wallerian degeneration.

## TALK TITLE

“Intra-operative imaging of nerve injuries:  
A Paradigm Shift ”

# STEPHANIE BRYANT

PhD

*session 1*



## BIO

Stephanie J. Bryant is the Thomas F. Austin Faculty Fellow and Professor of Chemical and Biological Engineering, Director of the Materials Science & Engineering Program and member of the BioFrontiers Institute at the University of Colorado at Boulder. She is a fellow of the American Institute for Medical and Biological Engineering and serves as the Associate Editor for Biotechnology and Bioengineering and Current Osteoporosis Reports.

Professor

University of Colorado

Boulder, CO



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## TALK TITLE

“Tissue-Mimetic Hydrogel Composites for  
Musculoskeletal Tissue Engineering”

# NENAD BURSAC

PhD

*session 3*



Professor of Biomedical  
Engineering, Cell biology,  
and Medicine

Duke University

Durham, NC



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## BIO

Dr. Nenad Bursac is a Professor of Biomedical Engineering, Cell Biology, and Medicine at Duke University. During his PhD and postdoctoral work at MIT and JHU, he developed first engineered mammalian heart tissues and methods to study cardiac arrhythmias in a dish. Currently, Dr. Bursac's research involves design of high-fidelity human microphysiological systems to study pathophysiology of striated muscles in vitro and development of novel cell- and gene-based therapies for cardiac and skeletal muscle regeneration in vivo.

Dr. Bursac has authored over 120 publications and mentored over 60 trainees. He is a recipient of the Stansell Family Distinguished Research Award and Stem Cell Innovation Award, a fellow of AIMBE and BMES, and an Associate Editor of Science Advances.

## TALK TITLE

“Modeling Rare Skeletal Muscle Diseases in a Dish”

# CELINE COLNOT

PhD

*session 4*



## BIO

Céline Colnot is a Research Associate Professor/ Director of Research at INSERM and a group leader at Mondor Biomedical Research Institute-INSERM U955-Paris Est Creteil University. She completed her PhD in Paris University in 1998 and her postdoctoral training at University of California, San Francisco where she became Assistant Professor until 2010. Her research focuses on the role of skeletal stem/progenitor cells in bone repair and diseases. The laboratory has expertise in mouse models of bone repair, primary skeletal stem cell culture, cellular and molecular analyses of skeletal lineages. The group characterized skeletal stem/progenitor cells within periosteum and skeletal muscle that contribute to bone regeneration and uses scRNAseq technology to understand the heterogeneity of these cell populations. The projects are funded by French National Research Agency and NIH.

## TALK TITLE

“Skeletal Stem/Progenitor Cells in Periosteum and Skeletal Muscle Coordinate Endochondral Ossification During Bone Regeneration”

Research Associate  
Professor

INSERM U955-Mondor  
Biomedical Research  
Institute  
Paris Est-Creteil University

Créteil, France



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# WARREN GRAYSON

PhD

*session 1*



## BIO

Dr. Warren Grayson is a Professor and Vice-Chair for Faculty Affairs in the Department of Biomedical Engineering at Johns Hopkins University. Prior to joining Johns Hopkins, he did his post-doctoral training at Columbia University and PhD at Florida State University. He is an elected fellow of the American Institute for Medical and Biomedical Engineering and has also been recognized by the National Academy of Medicine as an Emerging Leader in Health and Medicine.

Professor

Johns Hopkins University

Baltimore, MD



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## TALK TITLE

“Autologous Regeneration of Midfacial Bone in Large Animals”

# MATHEW GREENBLATT

MD, PhD

*session 4*



## BIO

Matthew Greenblatt is an Associate Professor of Pathology at Weill Cornell Medical College where his lab works to identify new types of skeletal stem cells and determine their role in driving skeletal disease processes. He also practices as a clinical pathologist and serves as the associate director of the pathology residency training program, overseeing physician scientist and clinical pathology training.

Associate Professor

Weill Cornell Medical College

New York City, NY



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## TALK TITLE

“A Skeletal Stem Cell Basis for Lineage Selection in Bone Homeostasis and Repair”



# NATHANIEL HUEBSCH

PhD

*session 1*



## BIO

Nate completed his BS in Bioengineering from the University of California, Berkeley and his PhD through the Harvard-MIT Division of Health Sciences and Technology. He then trained as a postdoctoral fellow at the Gladstone Institute of Cardiovascular Disease and the University of California, Berkeley where he held fellowships from the NIH and the California Institute of Regenerative Medicine. He joined the department of Biomedical Engineering at Washington University in Saint Louis in 2018. He is a 2021 recipient of the Young Innovator Award from the Cellular and Molecular Bioengineering journal. His group's research is funded by the American Heart Association and the National Institutes of Health.

Assistant Professor

Washington University

St. Louis, MO



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## TALK TITLE

“Designing Alginate Hydrogels to Exploit Integrin Signaling for Musculoskeletal Tissue Engineering”

# PHILIPP LEUCHT MD

*session 5*



## BIO

Philipp Leucht is an orthopaedic surgeon-scientist specializing in orthopaedic trauma surgery at NYU Langone Health in New York City and an Associate Professor of Orthopaedic Surgery and Cell Biology at the NYU Robert I. Grossman School of Medicine. He is the Director of the NYU Regenerative Medicine Program and the Director of Research for the Department of Orthopaedic Surgery at NYU Langone Health.

Dr. Leucht's research focuses on skeletal stem cell biology with special focus on aging, inflammation and regeneration. He directs an NIH-funded research group and published extensively on bone biology and orthopaedic trauma. He completed his residency and fellowship training at Stanford University.

Associate Professor

NYU Grossman School of  
Medicine

New York City, NY



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## TALK TITLE

“Skeletal Stem Cell Aging: Is it reversible?”

# BENJAMIN LEVI MD

*session 5*



Dr. Lee Hudson-Robert R.  
Penn Chair  
Division Chief of General  
Surgery  
Director, Center for  
Organogenesis & Trauma  
Associate Professor in  
Surgery

University of Texas  
Southwestern Medical  
Center

Dallas, TX



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## BIO

Benjamin Levi, M.D., holds the Dr. Lee Hudson-Robert R. Penn Chair in Surgery and Plastic and Reconstructive Surgery and serves as Chief of the Division of General Surgery and Director of the Center for Organogenesis and Trauma Research (CORT) at University of Texas Southwestern/Parkland Hospital. He specializes in acute and reconstructive burn surgery, scar reconstructive surgery and surgical critical care. He got his undergraduate degree at Washington University in Spanish and Biology followed by Medical School at Northwestern University. He did his Plastic Surgery Residency at University of Michigan and Fellowship in Surgical Critical Care and Burn Surgery at Massachusetts General Hospital. He started his career as a surgeon scientist at University of Michigan where he was on faculty for 6 years and directed the Burn/Wound and Regenerative Medicine Laboratory before joining the UT Southwestern faculty in 2020. Dr. Levi has a large research program, currently funded by the National Institutes of Health, 4 awards and Department of Defense to focus on stem cell biology, heterotopic ossification, muscle fibrosis, tissue regeneration and wound healing and repair. He is the author of more than 130 scholarly articles, including in Science Translational Medicine, Proceedings of the National Academy of Sciences, and Nature Communications, as well as chapters in a number of core textbooks in Surgery. He also has significant interest in Positive Intelligence and invests heavily in his division and laboratory team members to support and enhance mental fitness and wellness programs.

## TALK TITLE

“The Power of One: Investing in One Cell and One Lab Member at a Time”

# KEN MUNEOKA

PhD

*session 2*



## BIO

Dr. Muneoka received his doctoral and postdoc training at UC Irvine with Dr. Susan Bryant on salamander limb regeneration. In 1986 he started his lab as Assistant Professor at Tulane University with a focus on regeneration in higher vertebrates. From 1993 to 2005 Dr. Muneoka served as Chair of the Department of Cell and Molecular Biology at Tulane University and moved his lab to Texas A&M University in 2015. Dr. Muneoka has served as a member of the US Army Science Board, the Eunice Kennedy Shriver NICHD Council, and the VA Office of Regeneration Research Programs Advisory Board. Dr. Muneoka's research is focused on illuminating a road map for tackling the problem of regenerative failure in mammals. His research has been funded by the NIH and DoD.

## TALK TITLE

“A Digital approach to Regeneration and Regenerative Medicine”

Professor  
College of Veterinary  
Medicine and Biomedical  
Sciences  
Department of Veterinary  
Physiology and  
Pharmacology

Texas A&M University

College Station, TX



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# BRUNO PEAULT

PhD

*session 2*



Professor

University of California  
at Los Angeles and the  
University of Edinburgh (UK)

Los Angeles, CA



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## BIO

Bruno Péault, PhD, is Professor and Chair of Vascular Regeneration at the University of Edinburgh, UK, and Professor of Orthopaedic Surgery at the University of California at Los Angeles. His laboratory has identified perivascular cells at the origin of mesenchymal stem cells and studies the phenotypic and functional heterogeneity of these presumptive MSCs, and role thereof in organ regeneration and fibrosis. B. Peault's other interest is developmental hematopoiesis; he served earlier as a Professor of Pediatrics and co-director of the Stem Cell Research Center at Children's Hospital in Pittsburgh, as Research Director at CNRS and department head at INSERM in Paris.

## TALK TITLE

"Mesenchymal Stem Cells, from Natural Niches to Tissue Repair and Remodeling"

# FEINI (Sylvia) QU

VMD, PhD

*session 2*



## BIO

Dr. Feini (Sylvia) Qu trained as a veterinarian-scientist at the University of Pennsylvania, graduating with a Doctor of Veterinary Medicine (V.M.D.) and a Ph.D. in Bioengineering in 2017. She then moved to Washington University in St. Louis, where she was an NIH F32 NRSA postdoctoral fellow with Dr. Farshid Guilak and is now a research instructor in the Department of Orthopaedic Surgery.

## TALK TITLE

“Development vs. Regeneration: Skeletal Patterning and Outgrowth of the Murine Digit Tip”

Instructor

Washington University

St. Louis, MO



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# VICKI ROSEN

PhD

*keynote*



## BIO

My first position as an independent investigator was at Genetics Institute, where my project was to identify factors present in bone that were responsible for bone formation. This idea, named bone morphogenetic protein (BMP) by Marshall Urist, remained an ill-defined concept for many years. My colleagues and I isolated the first BMPs genes and reported on their activities in 1988, and BMP2 received FDA approval for enhancing bone repair in 2002. I then moved to Harvard School of Dental Medicine, where I am Professor and Chair, Department of Developmental Biology. Research in my lab is focused on understanding how BMPs affect development, maintenance and repair of musculoskeletal tissues.

## TALK TITLE

“Cues for Enhancing Musculoskeletal Regeneration From Studying BMP Signaling”

Professor

Harvard School of Dental  
Medicine

Boston, MA



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# JIE SHEN

PhD

*session 5*



Assistant Professor  
Orthopaedic Surgery

Washington University

St. Louis, MO



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## BIO

Dr. Jie Shen is an Assistant Professor in the Department of Orthopaedic Surgery at Washington University in St. Louis. As a cartilage biologist with specialization in osteoarthritis (OA) and fracture repair, Dr. Shen's interests span aspects of bone and cartilage research, and are mainly focused on injury, repair, and regeneration of musculoskeletal tissues with the goal to understand the progenitor cell population, signals, and role of inflammation and aging on tissue injury and regeneration at the cellular and molecular level. By using of state-of-the-art methodologies, including genetic animal models, unbiased sequencing and cell/tissue engineering, Dr. Shen is to apply his multidisciplinary expertise in inflammation, metabolism and epigenetics, in musculoskeletal systems to advance the understanding of the pathological mechanisms and development of preventive and management strategies as well as personalized biologic therapies for OA and fracture nonunion.

## TALK TITLE

“Fracture Nonunion: New Insights into Mechanism and Therapy”