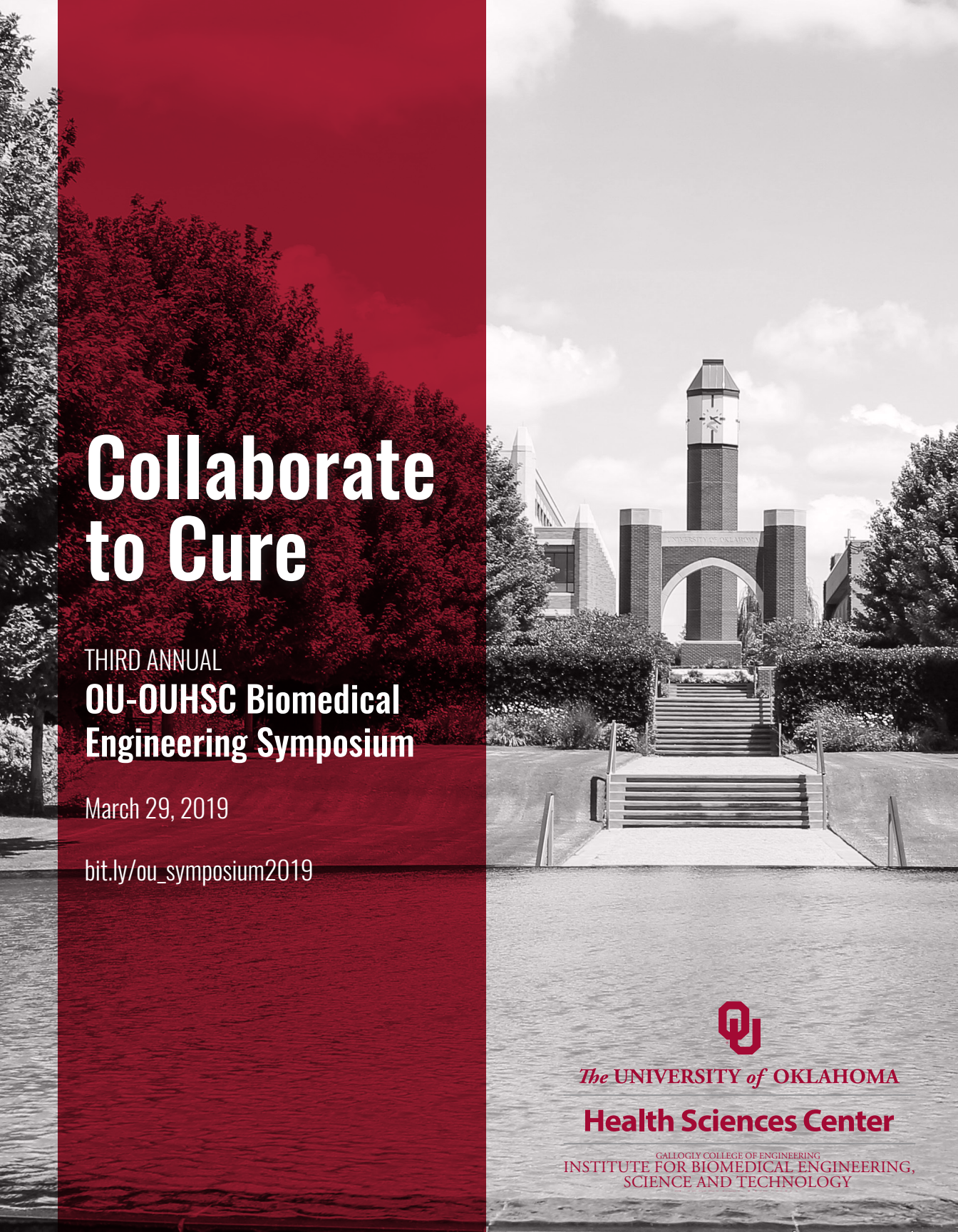

Collaborate to Cure

THIRD ANNUAL

OU-OUHSC Biomedical Engineering Symposium

March 29, 2019

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The UNIVERSITY of OKLAHOMA

Health Sciences Center

GALLOGLY COLLEGE OF ENGINEERING

INSTITUTE FOR BIOMEDICAL ENGINEERING, SCIENCE AND TECHNOLOGY

March 29, 2019

Collaborate to Cure

PROGRAM

7:30 a.m. Registration/Check-In

8:00 a.m. **Introduction and Welcome**
James J. Tomasek, PhD
Vice President for Research
David Ross Boyd Professor of Cell Biology

Randall S. Hewes, PhD
Interim Vice President for Research
Dean of the Graduate College
Professor of Biology, University of Oklahoma

Kent Teague, PhD
Assistant Vice President for Research
George Kaiser Family Foundation Chair in Community Medicine Research
University of Oklahoma, Tulsa

8:30 a.m. Keynote: **Immunoengineering**
David Mooney, PhD
Robert P. Pinkas Family Professor of Bioengineering
Harvard School of Engineering and Applied Sciences
Core Faculty Member, Wyss Institute for Biologically Inspired Engineering

9:30 a.m. Networking Break

10:00 a.m. Session: **Making Connections, Building & Sustaining Collaboration**

Talk 1: Closed-loop Neuromodulation
Han Yuan, PhD
Assistant Professor
Stephenson School of Biomedical Engineering
University of Oklahoma

Talk 2: Towards Precision Medicine in Improved Diagnostics and Personalized Treatment of Patients with Cerebral Aneurysm — Collaborative Research Between OU Norman and HSC Campuses
Chung-Hao Lee, PhD
Assistant Professor, School of Aerospace & Mechanical Engineering
Affiliated Faculty Member,
Institute for Biomedical Engineering, Science & Technology
University of Oklahoma

Talk 3: Screening of Osteogenic Peptides
Chuanbin Mao, PhD
George Lynn Cross Research Professor
Edith Kinney Gaylord Presidential Professor
Stephenson Life Sciences Research Center

Talk 4: Maximizing Movement Learning: A Technological, Behavioral, and Clinical Collaborative Approach
Thubi H.A. Kolobe, PT, PhD, FAPTA
Professor & Director of Research, Rehabilitation Sciences,
College of Allied Health
Edith Kinney Gaylord Presidential Professor
Ann Taylor Chair for Pediatrics & Developmental Disabilities
Director, Human Development Laboratory

Talk 5: Peptide-Based Materials and Applications in Biomedical Engineering
Handan Acar, PhD
Assistant Professor
Stephenson School of Biomedical Engineering
University of Oklahoma

Noon Lunch break/Poster Sessions/Lunch Topics by Table Including 3-D Printing

1:30 p.m. Session: **Collaboration in Dentistry & Oral/ Maxillofacial Surgery**

Talk 1: Development of the Digital Dentistry Lab and Teaching of Digital Dentistry in the Pre-Doctoral Curriculum
Yacoub Al Sakka, DDS
Assistant Professor
Restorative Dentistry
College of Dentistry

Talk 2: 3-D Printing in Oral and Maxillofacial Surgery
Steven Sullivan, DDS, FACS, FACD
Clinical Professor & Chair, Surgical Sciences
Oral and Maxillofacial Surgery
College of Dentistry

Talk 3: 3-D Printing in Periodontics
Tapan Koticha, BDS, MDS
Assistant Professor, Graduate Periodontics
College of Dentistry

Talk 4: Opportunities for Collaborative 3-D printing Research
Sharukh Khajotia, BDS, MS, PhD
Associate Dean for Research
Professor of Restorative Sciences
College of Dentistry

2:30 p.m. Networking Break

3:00 p.m. Session: **Building Tools & Sharing Technologies Across Interprofessional Teams**

Talk 1: Center for Human Performance Measurement-Progress Report
Carol P. Dionne, PT, DPT, PhD, MS, OCS, Cert MDT
Associate Professor, Rehabilitation Sciences
Director, Center for Human Performance Measurement
Director, Mechanical Therapy Research Lab

Talk 2: Wearable Focal Vibration on Mobility and Functional Rehabilitation
Hongwu Wang, PhD
Assistant Professor, Occupational Therapy Program
Director, Technology for Occupational Performance (TOP) Lab
Adjunct Professor, Stephenson School of Biomedical Engineering
Chickasaw Nation Scholar, Harold Hamm Diabetes Center

Talk 3: New Vision for Stopping the Obesity and Diabetes Epidemic: Intervention in the first 1000 days.
Jacob E. Friedman, PhD
Director, Harold Hamm Diabetes Center
Associate Vice Provost for Diabetes Programs
University of Oklahoma Health Sciences Center

4:00 p.m. Session: **What About Data?**

Talk 1: Using the Insight mHealth Platform & Integrated Biosensors to Improve Health Outcomes
Michael Businelle, PhD
Director of the mHealth Shared Resource
Oklahoma Tobacco Research Center, Stephenson Cancer Center
Associate Professor, Department of Family and Preventive Medicine

Talk 2: Big Data and Intelligent Data Analytics
Charles Nicholson, PhD
Assistant Professor
School of Industrial and Systems Engineering
Director, Analytics Lab

Talk 3: Navigating Institutional Data Policies
David M. Horton, BA
Interim CIO & Senior Associate Vice President for IT
University of Oklahoma campuses
Chief Technology Officer
University of Oklahoma Health Sciences Center

5:00 p.m. Poster Awards and Reception

KEYNOTE SPEAKER

David Mooney, PhD

» Robert P. Pinkas Family Professor of Bioengineering

» Core Faculty Member, Wyss Institute for Biologically Inspired Engineering at Harvard University

The basic question that drives Mooney's research is: how do mammalian cells receive information from the materials in their environment.

By utilizing the tools of cell and molecular biology, he studies the mechanisms by which chemical (for example, specific cell adhesion molecules) or mechanical signals (for example, cyclic strain) are sensed by cells and alter their proliferation and specialization to either promote tissue growth or destruction.

Mooney uses the results from these studies to design and synthesize new biomaterials that regulate the gene expression of interacting cells for a variety of tissue engineering and drug delivery projects. Current projects focus on therapeutic angiogenesis, regeneration of musculoskeletal tissues, and cancer therapies.

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PRESENTERS

Han Yuan, PhD

Assistant Professor | Stephenson School of Biomedical Engineering | University of Oklahoma

Prof. Han Yuan received her B.S. with honors from Tsinghua University, China. She earned her PhD in biomedical engineering in 2010 from the University of Minnesota (UMN), where she was trained in magnetic resonance imaging (MRI) and multi-modal imaging. She did postdoctoral work at the Laureate Institute for Brain Research in Tulsa, Oklahoma and the University of Oklahoma Health Sciences Center, Oklahoma City, Oklahoma. Currently, she is a tenure-track Assistant Professor in the Stephenson School of Biomedical Engineering, University of Oklahoma. Her research focuses on developing multimodal imaging technologies for diagnosing and treating brain conditions.

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Chung-Hao Lee, PhD

Assistant Professor, School of Aerospace & Mechanical Engineering
Affiliated Faculty Member, Institute for Biomedical Engineering, Science & Technology

Dr. Chung-Hao Lee is an assistant professor of Aerospace and Mechanical Engineering in the Gallogly College of Engineering at the University of Oklahoma (OU), with his research centered around soft tissue biomechanics and biomaterials design (http://ou.edu/coe/ame/bbdl/). Dr. Lee graduated with a bachelor's and master's degrees in Civil Engineering from National Taiwan University in 2003 and 2005, respectively, and he received a PhD in Civil Engineering (major in structural & computational mechanics) from UCLA in 2011. Before he joined OU in Fall 2016, Dr. Lee has been an ICES/AHA postdoctoral fellow in the Institute for Computational Engineering and Sciences at the University of Texas at Austin since 2012.

He has published over 25 journal papers and 4 book chapters, and he is the recipient of the American Heart Association Scientist Development Grant (2016-2020) and the OU Nancy L. Mergler Faculty Mentor Award for Undergraduate Research (2018). This collaborative research is currently funded by the OCAST Health Research Program, OU IBEST-OUHSC Interdisciplinary Fund for Collaborative Research, as well as the completed pilot grant sponsored by the Oklahoma Shared Clinical and Translational Resources (OSCTR).

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Chuanbin Mao, PhD

George Lynn Cross Research Professor | Edith Kinney Gaylord Presidential Professor

Stephenson Life Sciences Research Center, 3310

Dr. Chuanbin Mao is a George Lynn Cross Professor at the University of Oklahoma (OU). He is also a member of Institute for Biomedical Engineering, Science and Technology (iBEST) and Stephenson Cancer Center at OU. He received his PhD in 1997 from Northeastern University in China. He completed postdoctoral studies at Tsinghua University, followed by a faculty position in Tsinghua University. He then became a visiting scholar at the University of Tennessee at Knoxville. After postdoctoral studies at the University of Texas at Austin, he took a faculty position at OU in 2005 and progressed from assistant professor to full professor. He is a recipient of multiple awards including the NSF CAREER award. He is a fellow of the Royal Society of Chemistry (RSC) and American Institute for Medical and Biological Engineering (AIMBE). His research interests include phage nanobiotechnology, biomaterials, theranostics, regenerative medicine, and nanomedicine.

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Thubi H.A. Kolobe, PT, PhD, FAPTA

Professor and Director of Research | Rehabilitation Sciences | College of Allied Health

Edith Kinney Gaylord Presidential Professor

Ann Taylor Chair for Pediatrics and Developmental Disabilities

Director, Human Development Laboratory

Thubi H.A. Kolobe, PT, PhD, FAPTA, is the Edith Kinney Gaylord Presidential Professor and the Ann Taylor Chair for Developmental Disabilities in the Department of Rehabilitation Science at the University of Oklahoma Health Sciences Center. She holds a PhD in pediatric physical therapy from Hahnemann University and MS degree from the University of North Carolina at Chapel Hill. She is a co-developer of the Test of Infant Motor Performance (TIMP) for preterm infants, a norm-referenced test that is used worldwide. Her current research, funded by Foundations and Federal agencies such as National Institute of Health and National Science Foundation, examines the effectiveness of human-robotic movement learning in very young infants with particular focus on the connection between brain function and development of prone locomotion in infants with and without cerebral palsy. Her publications appear in many prestigious journals and widely used

textbooks. She has been a permanent member on a Scientific Review Committee for the National Institutes of Health for 9 consecutive years, and has served a 3-year term on a committee of the National Research Council of the National Academies of Science. She was recently appointed to serve a 3-year term on a National Advisory Board of the National Institute of Child Health and Human Development of the NIH.

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Handan Acar, PhD

Assistant Professor | Stephenson School of Biomedical Engineering
The University of Oklahoma

In Acar Laboratory, we use chemistry and materials science toolbox to answer important questions in the biological sciences. Our focus is specifically on peptide-based drugs, diagnostics, and materials.

Interest in peptides as potential drug candidates has naturally increased with recent progress in enhancing their structural and chemical stability, along with their ability to cross the cell membrane. Peptide-based therapeutics that target not only specific cells but also specific protein-protein interactions in the cytoplasm will herald a new era of "personalized medicine". In this approaching new era, chemical tools to engineer peptides into molecular probes will be invaluable. The combination of carefully selected and localized interactions will produce stable assemblies, which can be reversible, highly tunable, dynamic, and modular as required by the specific application. Effective approaches to the design of molecular therapeutics must be safe, sensitive, efficient, and rapidly adapted to new targets with minimal effort and expense.

To enable new translational clinical technologies, our research focus on molecular design that incorporates these aspects into the new materials. The broad-ranging application of this technology to clinical medicine and biochemical research we study (i) the enhancement of the nanoparticles in the body circulation, (ii) optimized the linkers for controlled delivery of drugs, (iii) payloads other than peptides for variety of applications.

Handan Acar received her PhD in Materials Science and Nanotechnology from Bilkent University, Turkey, where she worked with Mustafa O. Guler, MD on the design and synthesis of self-assembling peptides. She worked at The University of Chicago as a postdoctoral scholar with Matthew Tirrell, MD and James LaBelle, MD, PhD, on peptide-based therapeutic agents for cancer treatment. Currently, Dr. Acar is Charles and Peggy Stephenson Assistant Professor at the University of Oklahoma in Stephenson School of Biomedical Engineering. Using her expertise with engineering programmable self-assembling peptides, in combination with assorted chemical tools, her lab aims to understand and manipulate biological systems using therapeutics at the nanoscale.

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Yacoub Al Sakka, DDS

Assistant Professor | Restorative Dentistry | College of Dentistry

Dr. Yacoub Al Sakka is the Director of Digital Dental Technologies and an assistant professor in the Department of Prosthodontics and Graduate Periodontics at the University of Oklahoma College of Dentistry. He completed his residency in prosthodontics at the Indiana University School of Dentistry. In 2014, he joined the faculty at the OU College of Dentistry.

Dr. Al Sakka is the fixed partial denture course director. His interest is complex rehabilitation of partially and completely edentulous patients.

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Steven Sullivan, DDS, FACS, FACD

Clinical Professor and Chair | Surgical Sciences | Oral and Maxillofacial Surgery College of Dentistry

Dr. Sullivan completed his dental training at the Baylor College of Dentistry in Dallas, Texas in 1983. He then underwent oral and maxillofacial surgery training at the University of Oklahoma, completing the program in 1988. His international training experiences included the West of Scotland Plastic and Oral Surgery Unit in Glasgow Scotland, as well as the University of Melbourne and Royal Children's Hospital as a fellow in the Plastic and Maxillofacial Surgery unit in Melbourne, Australia.

Dr. Sullivan was appointed Chairman of the Department of Oral and Maxillofacial Surgery at the University of Oklahoma in 1992. He has served on the examination committee for the American Board of Oral and Maxillofacial Surgery, has been President of the Oklahoma Society of Oral and Maxillofacial Surgeons and the Southwest Society of Oral and Maxillofacial Surgeons. He is also a member of the AAOMS Committee on Residency Education and Training. His practice is devoted to surgical correction of dentofacial deformities, and temporomandibular joint reconstruction. Dr. Sullivan lectures nationally and internationally on these topics.

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Tapan Koticha, BDS, MDS

Assistant Professor | Graduate Periodontics | College of Dentistry

Dr. Tapan Koticha is the director of the Graduate Periodontics Program at the University of Oklahoma, College of Dentistry. He earned his dental degree in 2000 from the University of Mumbai, India. He then received a master's degree in Prosthodontics from the National University of Singapore in 2008 and taught prosthodontics there for three years thereafter. Dr. Koticha completed his training in Periodontics at the University of Michigan in 2014.

He joined the Department of Periodontics at the OU College of Dentistry in 2014, and in 2016 was named the director of the Graduate Periodontics program. Dr. Koticha has published in numerous journals, including the Journal of Periodontology, Journal of Prosthetic Dentistry and Implant Dentistry. He has received numerous awards such as the Ben Duff Award for Excellence (2012), the Richard J. Lazzara Fellowship in Advanced Implant Surgery (2014-15) and the Sigurd P. Ramfjord Award for Excellence (2014).

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Sharukh Khajotia, BDS, MS, PhD

Associate Dean for Research | Professor of Restorative Sciences | College of Dentistry

Sharukh S. Khajotia, BDS, MS, PhD, is currently Professor and Head of the Division of Dental Biomaterials at the University of Oklahoma College of Dentistry. He is also the Associate Dean for Research, and holds appointments in the Graduate College of the University of Oklahoma Health Sciences Center (OUHSC) and the OU School of Chemical, Biological and Materials Engineering. Dr. Khajotia has a dental degree from Nair Hospital Dental College, University of Bombay, India (1988), a Master of Science degree in Dental Biomaterials from Marquette University (1992), and a PhD in Oral Biology from the Medical College of Georgia (1997).

Dr. Khajotia has authored/co-authored over 125 peer-reviewed publications, abstracts and textbook chapters. His research focuses on the characterization and modification of biomaterials-biofilm interfaces at the nanoscale level, in addition to studies on restorative and orthodontic dental biomaterials. Funding for his research has been provided by grants from the National Institutes of Health (NIH), the Oklahoma Center for the Advancement of Science and Technology, the Presbyterian Health Foundation, the College of Dentistry Student Research Program, and corporate sponsors. He has received numerous awards in recognition of his teaching, scholarly and service contributions including an OU President's Associates Presidential Professorship and eight Most Outstanding Classroom Instructor Awards. Dr. Khajotia has served as a research mentor to over 90 pre-doctoral, undergraduate and graduate students, post-doctoral fellows and junior faculty, and has presented his research at numerous national and international conferences. He has a strong interest in educating dental students, graduate students, post-doctoral fellows and junior faculty to become better practitioners via exposure to research, evidence-based practice and critical thinking skills. Dr. Khajotia also has dedicated himself to service efforts in international organizations and educational institutions in the U.S. and Brazil. He has served as the chair or a member of numerous NIH review panels and external advisory boards. In addition, he has served the American Association for Dental Research in various positions, ranging from officer positions in the Oklahoma Section since 1997 to serving as an abstract reviewer and Sub-Group Program Chair for the Dental Materials Group and chairing the Ethics Committee and the Constitution Committee.

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Carol P. Dionne, PT, DPT, PhD, MS, OCS, Cert MDT

Associate Professor, Rehabilitation Sciences | Director, Center for Human Performance Measurement | Director, Mechanical Therapy Research Lab

Since 2006, Dr Dionne has led a productive interdisciplinary research team which has focused on activity performance of individuals with lower limb loss. In 2016, Dr Dionne was also appointed Director of the Center for Human Performance Measurement (CHPM), a center which she founded. Currently, her research collaborators hail from the University of Oklahoma's College of Medicine, College of Engineering, College of Public Health, and College of Allied Health as well as the Oklahoma Medical Research Foundation. She has 1) a productive history of foundation-funded research, 2) established methods, 3) true discovery, and 4) peer-reviewed dissemination, concerning human performance. As a result, she and her team have presented in over 16 (regional, national and international) peer-reviewed conferences and workshops and authored 27 publications to peer-reviewed journals. They discovered and described emerging evidence that: 1) residuum-prosthetic socket interfacial loads and distal-most muscle activity differed by

transtibial amputation surgical approach during walking and carrying work tasks; 2) axial weight bearing and distal-most residuum muscle co-contraction, two potential factors to support good bone health and sustained gait stability, occurs in working age individuals with transtibial limb loss. She and her team have recently completed study on working-age adults with transfemoral limb loss with and without borderline Type 2 Diabetes Mellitus. She currently is a co-PI or co-I on studies in the CHPM that involve infant sitting ability, ballet performance, ergonomics of NICU resuscitators, innovative intervention for diabetic neuropathy and osteomyoplastic amputation. Dr Dionne now plans to focus on pre-clinical detection of instability of kinetics, kinematics, and muscle activation which transcends any task performed (gait, dance, etc) by individuals with any condition (diabetes, aging, limb loss, cancer, neuropathy).

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Hongwu Wang, PhD

Assistant Professor, Occupational Therapy Program | Director, Technology for Occupational Performance Lab | Adjunct Professor, Stephenson School of Biomedical Engineering | Chickasaw Nation Scholar, Harold Hamm Diabetes Center | Department of Rehabilitation Sciences, College of Allied Health | University of Oklahoma Health Sciences Center

Dr. Wang received his PhD in Rehabilitation Science and Technology with a specialization in Rehabilitation Robotics from University of Pittsburgh. He subsequently continued his training as a post-doctoral fellow at the Human Engineering Research Laboratories, a joint center between University of Pittsburgh and VA Pittsburgh Healthcare System. He was a recipient for the Craig Neilsen Foundation Postdoctoral Fellowship award on his idea of the development of a reliable and valid clinical assessment tool for assistive robotic manipulator. He was also a recipient of the NIDILRR Switzer Distinguished Researcher Fellowship Award. Currently, Dr. Wang is an assistant professor and Harold Hamm Diabetes Center Chickasaw Nation Scholar at University of Oklahoma Health Sciences Center in Department of Rehabilitation Sciences.

The common threads running through his research are his interests in rehabilitative technology, sensors, machining learning, human-technology interaction, and technology transfer. He has been particularly active in the areas of rehabilitation robotics, sensor-driven health technologies and systems, and instrumented environments and ambient assistive living. His long-term goal is to design and develop technology and innovative evidence-based outcome measurement tools for complex interaction of personal and contextual factors that impact functional performance and heath service delivery. Currently, he is developing and evaluating wearable focal vibration therapy for precision rehabilitation for patients with stroke and diabetes. He has published 29 journal papers, 1 book chapter, and hold 4 patents.

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Jacob E. "Jed" Friedman, PhD

Director, Harold Hamm Diabetes Center | Associate Vice Provost for Diabetes Programs, The University of Oklahoma Health Sciences Center

Dr. Jacob E. (Jed) Friedman is the Director of the Harold Hamm Diabetes Center and Vice-Provost for Diabetes programs at the University of Oklahoma Health Sciences Center and Chickasaw Professor of Physiology at the OUHSC School of Medicine. Dr. Friedman was previously (18 yr) director of the Colorado NIH-Nutrition and Obesity Research Center (NORC) Molecular and Cellular Analytical core lab, with appointments in Pediatrics, Medicine, Biochemistry and Molecular Genetics. He has a long track record of collaborative research in humans, primates, and mouse models of Diabetes and obesity focused on pathways for developmental programming of metabolism from mothers to infants during the first 1000 days of life. Dr. Friedman's research spans the gamut from cells to humans and back again. His recent data demonstrate that mechanisms underlying development of obesity, diabetes, and neuro-cognitive behaviors across the lifespan may begin operating in fetal life and may permanently change the body's structure, physiology, and metabolism that drive health risks in the next generation. Dr. Friedman uses a team science approach ranging from human epidemiology to metabolic studies in human tissues and cells and pre-clinical models of disease to identify new targets and tools for diagnosis and treatment of mothers with obesity (1 in 3), diabetes (1 in 5), including nutritional countermeasures to halt obesity and diabetes in the next generation. Dr. Friedman has authored >150 studies with multiple clinical investigators in the area of body composition, insulin action, metabolomics, liver disease, and more recently the human microbiome. Over the last 10 years he has been part of 7 NIH based omics-driven team science grants (as PI or co-I) in partnership with Biostatistics, Bioinformatics, and informaticists at Colorado Anschutz Medical Center, and Baylor College of Medicine ranging from RNA transcriptomics, metabolomics, epigenetics, to metagenomics of the microbiome. Dr. Friedman has mentored >57 MD and PhD post-doc fellows (9 Ks, 4 F32s, 5 RO1s), the majority of whom hold faculty positions (Instructor, or above) at biomedical research institutes across the US.

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Michael Businelle, PhD

Director of the mHealth Shared Resource | Oklahoma Tobacco Research Center, Stephenson Cancer Center | Associate Professor, Department of Family and Preventive Medicine

Dr. Michael Businelle is an Associate Professor in the Department of Family and Preventive Medicine at the University of Oklahoma Health Sciences Center (OUHSC) and a member of the Stephenson Cancer Center (SCC). Over the past 17 years his research has focused on testing novel treatments and reducing health disparities in socioeconomically disadvantaged populations. Dr. Businelle earned his PhD in Clinical Psychology from Louisiana State University in 2007 and completed a 2.5 year, NCI funded, postdoctoral fellowship in Cancer Prevention Research at the University of Texas MD Anderson Cancer Center in 2009. His postdoctoral training was primarily focused on using ecological momentary assessment (EMA) techniques and advanced statistical methods (e.g., structural equation modeling) to test conceptual models of the mechanisms through which socioeconomic disadvantage influences smoking cessation. Since 2011, he has been the PI on 11 intervention studies that have been funded by the NIH, ACS, and internal funds and he has over 100 peer reviewed publications in the areas of smoking cessation, health disparities, and mHealth.

Dr. Businelle was recruited to the OUHSC in October 2015 to develop and direct the SCC Mobile Health (mHealth) Shared Resource. The mHealth resource is staffed by 4 programmers,

a program manager, and a research technician. In the past 2 years, his team has developed the Insight mHealth platform. The Insight platform enables researchers to rapidly create mobile applications that can utilize ecological momentary assessments (EMA) and sensor data (i.e., activity monitor, mobile carbon monoxide monitor, e-cigarette device) to identify environmental, cognitive, affective, physiological, and behavioral antecedents of cancer risk behaviors (e.g., smoking, heavy alcohol use, poor diet / inactivity / obesity, etc.) and deliver context-specific adaptive interventions in real time. The mHealth resource currently supports 30 smartphone based studies (14 NIH funded; 2 of these studies are collecting data outside the US – Cambodia, and Scotland).

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Charles Nicholson, PhD

Assistant Professor | School of Industrial and Systems Engineering | Director, Analytics Lab

Charles Nicholson is an assistant professor at the University of Oklahoma in the School of Industrial and Systems Engineering and a core faculty member of the Data Science and Analytics program in the Gallogly College of Engineering. His research area is in complex resilient network systems, novel predictive and classification modeling approaches, and applied meta-heuristics. He is currently engaged in multiple large interdisciplinary projects investigating approaches to help communities (e.g., cities, towns) withstand and recover rapidly from major natural disasters. He works with with experts from Civil Engineering, Economics, Social Science, and Computer Science to study and quantify how disruptions in the complex interdependent infrastructure systems that underpin modern society impact economic measures and social norms. In essence, he studies how "big data" and novel machine learning approaches can help mitigate impacts, inform emergency response, and improve the efficiency of recovery efforts.

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David M. Horton, BA

Interim CIO and Senior Associate Vice President for IT | University of Oklahoma | Chief Technology Officer, OUHSC

David Horton is the Interim CIO & Senior Associate Vice President for IT for the University of Oklahoma campuses and the Chief Technology Officer at the OU Health Sciences Center. Joining OU in 2001 as a technical architect, David became the Director of Infrastructure Services for OUHSC in 2004. He led a significant transformation agenda including team optimization, creation of a service management culture, and modernization of campus IT infrastructure. In 2008, David began working within the office of the VP/CIO on cross-campus innovation initiatives focusing on organizational improvement. In 2011 he developed and led the creation of a standardized private cloud infrastructure and a collaborative shared services initiative spanning all OU campuses using a people-first approach. Prior to OU, David had twenty years of technology and computing experience including software development, healthcare, retail, and consulting and previously held a number of industry technical certifications. David is an alumnus of Oklahoma City University (BA Liberal Studies).

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