2017 CUTC Annual Summer Meeting



June 19-21, 2017 Buffalo, New York







University at Buffalo Institute for Sustainable Transportation and Logistics

MAP AND WIFI

Directions: Attendees can use the HarborCenter bridge that connects the Marriot Buffalo HarborCenter into KeyBank Center and then enter into the Lexus Club through the front entrance.

WiFi Password: LexusClub



ACKNOWLEDGMENTS

We would like to thank everyone who helped with the 2017 CUTC Annual Summer Meeting:

CUTC Executive Committee: Jill Hough, President; Lily Elefteriadou, Vice President; Karen Philbrick, Secretary; Thomas O'Brien, Treasurer; Joel Volinski, Immediate Past President; Una Connolly, Executive Director; Patrick Szary; Chandra R. Bhat; Jennifer Dill; Laurie McGinnis; Stan Caldwell; Musharraf Zaman

University at Buffalo TransINFO Faculty & Staff: Jennifer Giegel, Kevin Hulme, Ria Iliadou, Chunming Qiao, Adel Sadek, Joah Sapphire

Office of Communications, School of Engineering and Applied Sciences, University at Buffalo: Sarah D'Iorio, James Friedman

School of Engineering and Applied Sciences, University at Buffalo Students Yu Cui, Qingxiang Mo, Salaheldeen Seliman, Li Tang,

Special thanks to: Stephanie Dafoe, Niagara Falls Bridge Commission; James Gordon, University at Buffalo; Raj Rajkumar, Carnegie Mellon University

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WELCOME FROM THE DIRECTOR



It is with great pleasure that I welcome you to the 2017 CUTC Annual Summer Meeting and to Buffalo, New York.

Buffalo will surprise you with its fascinating history, thriving art scene and recent renaissance of neighborhoods including the downtown area. You could spend days just touring the city's many historic buildings, skyscrapers, churches and mansions. Once a prosperous city thanks to its strategic location on the Erie Canal, which made it

a major transportation hub, Buffalo was able to afford prestigious architects of that era to create a model city to be followed by others. At the end of the 19th century, the Guaranty Building—constructed by Louis Sullivan was a prominent example of an early high-rise skyscraper. The 20th century saw works such as the Art Deco-style Buffalo City Hall and Buffalo Central Terminal, Electric Tower, the Richardson Olmsted Complex, and the Rand Building. Five buildings in the area were built by Frank Lloyd Wright. Only Chicago has more Wright buildings than Buffalo! Overall, the city has 80 buildings that are registered in the National Register of Historic Places.

The Olmsted Park and Parkway System, with over 20 parks, is the hallmark of Buffalo's many green spaces. Constructed in 1868 by Frederick Law Olmsted, who also designed Central Park and Prospect Park in New York, and his partner Calvert Vaux, the system was integrated into the city and marks the first attempt in America to lay out a coordinated system of public parks and parkways.

The city has been a pioneer in many other aspects as well. Thanks to its proximity to the powerful Niagara Falls, it was the first city to feature electric street lights in 1886. The Hotel Buffalo (originally known as the Statler Hotel) was the first hotel in the world to have a private bath in each room, and grain elevators were invented in Buffalo in 1842.

Thanks to the city's location right at the confluence of the Buffalo River, the Niagara River and Lake Erie, Buffalo's Erie Canal Harbor was an industrious port that bustled with people and goods from all over the world as part of the Erie Canal Corridor for much of the 19th century. The Erie Canal is recognized by the United States Congress as the most successful and influential human-built waterway and one of the most important works of civil engineering in North America.

Buffalo has a lot to offer in the way of arts, culture, and nightlife. Championship sports teams, famous art collections, and museum exhibits make it a place that is rich in culture. It has become a regional center for many different types of performing arts. The Buffalo Philharmonic Orchestra performs in the city regularly. The city is home to over 50 private and public art galleries, most notably the Albright-Knox Art Gallery, home to a collection of modern and contemporary art, and the Burchfield-Penney Art Center. The Buffalo area's largest theater is Shea's Performing Arts Center, designed to accommodate 4,000 people with interiors by Louis Comfort Tiffany.

The city's waterfront has experienced a renaissance in the last few years, offering a range of walkways and restaurants as well as fun activities throughout the summer.

On behalf of the faculty, staff and students of TransINFO, welcome to Buffalo!

Adel Sadek Director, TransINFO, University at Buffalo

ABOUT TRANSINFO



Transportation Informatics (TransINFO) University Transportation Center (UTC) leverages its partnership with top-tier transportation research universities to collaborate with government, industry, academia, and policy makers around the globe in search of transportation solutions by mining the wealth of big data available and employing a wide variety of methods, tools and models, including artificial intelligence (AI), machine learning, statistics, and database systems.

TransINFO has funded research projects in five research domains:

- Transportation Operations
- Safety, Efficiency and Sustainability
- Public Transportation
- Performance Measurement
- Travel Behavior Modeling

TransINFO is a consortium of four member national universities, University at Buffalo (lead university), Rensselaer Polytechnic Institute, George Mason University and the University of Puerto Roco-Mayagüez, and one non-member research corporation, CUBRC, located in Buffalo, N.Y.

Headquartered at the University at Buffalo, TransINFO is led by Adel Sadek, Professor in the Department of Civil, Structural and Environmental Engineering, and includes faculty from the Department of Computer Science and Engineering, in particular, Chunming Qiao, Lu Su, Wen Dong and Jing Gao. Other faculty within UB's School of Engineering and Applied Sciences and the School of Management, as well as local transportation agencies, also participate as partners.

TransINFO is funded by the USDOT's Office of the Assistant Secretary for Technology and Research (OST-R).

AGENDA

Monday, June 19

1:00 p.m.	Registration Opens (7th Floor Lobby) Marriott HarborCenter Hotel, 95 Main St., Buffalo
1:45 - 2:00 p.m.	Depart for University at Buffalo Marriott HarborCenter Hotel (Valet Area, Main Street)
2:30 – 5:00 p.m.	 Technical Tours North Campus, University at Buffalo Live Demo of Level 5 Autonomous Vehicles / Attendees will be able to ride in the AV Tour of the Motion Simulation Laboratory (MSL)
6:00 - 8:00 p.m.	 Welcome Reception Marriott HarborCenter Hotel, Pan-American Ballroom Welcoming Remarks Liesl Folks, Dean, School of Engineering and Applied Sciences, University at Buffalo Adel Sadek, Director of Transportation Informatics Tier I University Transportation Center

Tuesday, June 20

All Meeting Sessions at the Lexus Club, Key Bank Arena (1 Seymour H. Knox III Plaza, Buffalo)

7:30 a.m.	Registration and Continental Breakfast Lexus Club
8:30 - 9:00 a.m.	 Host Welcome Adel Sadek, Director of Transportation Informatics Tier I University Transportation Center Charles F. Zukoski, Provost and Executive Vice President for Academic Affairs, University at Buffalo Kathy Hochul, Lt. Governor of the State of New York

9:00 - 10:00 a.m.	 Welcoming Remarks and UTC Competition Question and Answer Kevin Womack, Director, Office of Research, Development and Technology, USDOT
10:00 - 10:30 a.m.	Speaker Series Denise Dunn, University Grants Manager, USDOT
	Spotlight Conference Robin Kline, University Grants Manager, USDOT
10:30 - 10:45 a.m.	Break
10:45 - 11:00 a.m.	 Student Development and Enhancement Opportunities Diane Woodend Jones, Chair, WTS International Board Tiffany Jackson, Director, Membership and Chapter Development, WTS International
11:00 a.m. – 12:00 p.m.	 Data Management Plan Kevin Womack, Director, Office of Research, Development and Technology, USDOT Charles R. Ducker Jr., Sr. Intellectual Property Counsel, Office of General Counsel, USDOT Alasdair Cain, Director, Research, Development and Technology Coordination, USDOT
12:15 - 1:30 p.m.	Lunch Lexus Club
1:30 - 3:00 p.m.	 Additional Information on Data Management Plan (Optional Breakout Session) Charles R. Ducker Jr., Sr. Department Intellectual Property Counsel, Office, General Counsel, USDOT (Key Bank Lounge)
1:45 - 2:45 p.m.	 Grant Requirements Panel Janet Daly, Indexing Manager, TRB Denise Dunn, University Grants Manager, USDOT LaChaundra Graham, University Grants Manager, USDOT Robin Kline, University Grants Manager, USDOT Amy Stearns, University Grants Manager, USDOT Dawn Tucker-Thomas, University Grants Manager, USDOT

Tuesday, June 20 - Continued

TransINFO Research Poster Session

2:45 -3:45 p.m.

Presenters:

- Adel Sadek, University at Buffalo
- Shanjiang Zhu, George Mason University
- Ivette Cruzado University of Puerto Rico at Mayagüez
- Kevin Majka, CUBRC

Posters:

- An Evaluation of Knowledge Discovery & Dissemination Tools for Big Data Transportation Research Kevin Majka, Eric Nagler, Alan Blatt, CUBRC
- Behavior-based Traveler Classification Using High-Resolution Connected Vehicles Trajectories and Land Use Data Yu Cui, Qing He, University at Buffalo
- Traffic Control at Freeway Work Zones Using Connected Vehicles Technology Salaheldeen Seliman, Qing He, Adel Sadek, University at Buffalo
- Development of iCAVE2: instrument for Connected and Autonomous Vehicle Evaluation and Experimentation Xin Liu, Chunming Qiao, University at Buffalo
- Impact of Bikeshare Pricing on Ridership and Revenue Shruthi Kaviti, Shanjiang Zhu, Mohan Venigalla, George Mason University
- Assessing Travel Behavior Responses to Washington Metro SafeTrack Project using Smartphone App Data Zhuo Yang, Shanjiang Zhu, George Mason University Lei Zhang, University of Maryland
- Improving Incident Response Strategies using Simulated Optimization Method Guangi Liu, Shanjiang Zhu, George Mason University

	TransINFO Research Poster Session, continued
	 CARS: Mobile Application for Vehicle Accident Report Submission Jessica Cotrina, Manuel Rodriguez, Ivette Cruzado, University of Puerto Rico, Mayagüez
	 Development of Transit Performance Measures using Big Data Juan Martinez, Yindhira Taveras, Didier Valdes, Ivette Cruzado, University of Puerto Rico, Mayagüez
	 Development of Collision Diagram for CARS Mobile Application Alfredo Pomales, Manuel Rodriguez, Ivette Cruzado, University of Puerto Rico, Mayagüez
	 VehSense: Slippery Road Detection Using Smartphones Yunfei Hou, Abhishek Gupta, Lu Su, Chunming Qiao, Shaohan Hu, California State University, University at Buffalo, IBM Research
2:45 - 4:00 p.m.	UTC Administrative Managers' Session Marriott Hotel, Pan American Ballroom II
	Moderator: Ines Aviles-Spadoni, Coordinator, Research Programs/Services, University of Florida
	Presenters:
2:50 p.m.	 David Jared, Assistant State Engineer, Georgia DOT/ Office of Research Topic: Ahead of the Curve: Transportation Research
	Manager's Certification
3:00 p.m.	 Jacob Heiden, Research Support Coordinator, SAFER-SIM/University of Iowa Topic: Improving K-12 Activities through Innovative Collaborations
3:10 p.m.	 Victoria V. Deguzman, Associate Director, Administration, METRANS/University of Southern California Topic: Professional Development/Student Enrichment Programs
3:30 p.m.	 General Discussion Related to Various UTC Management Issues

Tuesday, June 20 - Continued

DINNER & TOUR TO NIAGARA FALLS (4:30 - 9:00 p.m.)

4:30 -	UB Buses Depart
4:45 p.m.	Marriott HarborCenter Hotel
5:30 -	Dinner at Top of the Falls Restaurant
8:30 p.m.	Niagara Falls State Park
6:45 - 8:30 p.m.	Tour Option #1: Maid of the Mist boat ride
6:45 -	Tour Option #2: Niagara Falls Bridge Commission and
8:30 p.m.	Operations Center
6:45 - 8:30 p.m.	Tour Option #3: Niagara Falls State Park
8:30 - 9:00 p.m.	UB Buses back to Marriott HarborCenter Hotel

Wednesday, June 21

All Meeting Sessions at the Lexus Club, Key Bank Arena (1 Seymour H. Knox III Plaza, Buffalo)

7:30 - 8:30 a.m.	Registration and Breakfast Lexus Club
8:30- 9:00 a.m.	CUTC Welcome Jill Hough, CUTC President, North Dakota State University
9:00 - 10:00 a.m.	CUTC/AASHTO RAC/State DOTs Coordination Moderator: Chandra Bhat, University of Texas at Austin Panel Members: • Gen Giuliano, METRANS Transportation Center Director • Jim Appleton, Division Chief, Caltrans • Michael Hunter, Associate Professor, Georgia Tech • David Jared, Assistant State Engineer, Georgia DOT/ Office of Research

10:00 - 10:30 a.m.	Break
10:30 -	Data Analytics in Transportation
n.so a.m.	Moderator: Lily Elefteriadou, University of Florida
	Presenters:
	 Catherine Lawson, University at Albany Topic: "Research "On Tap": The Role of Application Programming Interfaces (APIs) in Web-based Transportation Data Analytics"
	 Natalia Ruiz Juri, University of Texas, Austin Topic: "A Framework to Support Data-centric Transportation Research: The Data Rodeo Concept"
11:30 a.m 1:00 p.m.	Lunch Lexus Club
1:00 - 2:15 p.m	Panel on UTC Operations
1:00 - 2:15 p.m.	Panel on UTC Operations Moderator: Lily Elefteriadou, University of Florida
1:00 - 2:15 p.m.	Panel on UTC Operations Moderator: Lily Elefteriadou, University of Florida Panel Members:
1:00 - 2:15 p.m.	 Panel on UTC Operations Moderator: Lily Elefteriadou, University of Florida Panel Members: Atorod Azizinamini, Professor and Chair, Florida International University
1:00 - 2:15 p.m.	 Panel on UTC Operations Moderator: Lily Elefteriadou, University of Florida Panel Members: Atorod Azizinamini, Professor and Chair, Florida International University Jennifer Dill, Professor, Portland State University Denver Tolliver, Director, UGPTI, North Dakota State University
1:00 - 2:15 p.m. 2:15 - 4:00 p.m.	 Panel on UTC Operations Moderator: Lily Elefteriadou, University of Florida Panel Members: Atorod Azizinamini, Professor and Chair, Florida International University Jennifer Dill, Professor, Portland State University Denver Tolliver, Director, UGPTI, North Dakota State University CUTC Business Meeting Lexus Club
1:00 - 2:15 p.m. 2:15 - 4:00 p.m. 4:00 - 5:00 p.m.	 Panel on UTC Operations Moderator: Lily Elefteriadou, University of Florida Panel Members: Atorod Azizinamini, Professor and Chair, Florida International University Jennifer Dill, Professor, Portland State University Denver Tolliver, Director, UGPTI, North Dakota State University CUTC Business Meeting Lexus Club RETRC Meeting (Members only) Lexus Club

TECHNICAL TOURS

Take a Glimpse into the Autonomous Future

Autonomous Vehicle Live Demonstration / UB's Motion Simulation Laboratory (MSL) Tour

Experience automated vehicle technology in person and see potential transportation applications that could save lives.

June 19th at 2:30 – 5:30 p.m.

Tour #1: Autonomous Vehicle Live Demonstration – Center for Tomorrow, North Campus, University at Buffalo (UB)

Live demo of Carnegie Mellon University's Autonomous Vehicle (AV) on UB's campus service roads. Participants will be able to observe and ride in the AV.

The Carnegie Mellon University (CMU) team, led by Dr. Raj Rajkumar, is one of the partners on a large NSF-funded project led by UB researchers. The CMU team outfitted a Cadillac SRX with an array of sensors that allow it to manage highway traffic, congested roadways, and



even merging on and off ramps. It can autonomously perform driving functions like steering, acceleration, and braking. Using the radar system, this vehicle also senses and avoids roadway hindrances, like pedestrians and cyclists.

The NSF-funded project, called Instrument for Connected and Autonomous Vehicle Evaluation and Experimentation (iCAVE2), develops a first-of-its-kind 5-in-1 integrated, augmented-reality simulator. It has unprecedented fidelity, capability, flexibilities and scalabilities not offered by any existing simulators and road tests, and is an ideal platform to bring together communities from academia, industry and government agencies to collaborate on the testing, validation and certification of both connected and autonomous vehicle technologies. For more information on the iCAVE2 project, including other partners, please visit icave2.cse.buffalo.edu.

Tour #2 of Motion Simulation Laboratory (MSL) – Furnas Hall North Campus, University at Buffalo (UB)

The simRING is a full 6-degree-of-freedom motion-based driving simulator that features the front end of a car mounted on a moving platform that emulates the real-life motions of a car as it reacts to turns, changes in elevation, and other road conditions. simRING features a 360-degree, 16-



foot diameter, 6' high screen that fully surrounds the simulator vehicle, which provides the driver with a full-fidelity depiction of surrounding traffic, landmarks, and roadway conditions. The system also features high-fidelity on-board controls to navigate the simulator, as well as a stereo sound system that emulates noises heard inside and outside the vehicle during a driving excursion.



The state-of-theart laboratory, the MSL is a School of Engineering and Applied Sciences (SEAS) shared research facility located on the North Campus of the University at Buffalo. The 800 square foot facility is implemented primarily for the custom design and

development of ground vehicle simulations for applications in clinical research, education and training as well as next-generation transportation and human factors studies. Recent areas of focus include: standardization of simulators in teen driver safety, fidelity requirements in simulation system specification, multi-participant civilian driving simulators, and serious gaming and Edutainment in simulation-based training. For more information on the simulator, visit: https://www.buffalo.edu/shared-facilities-equip.

NIAGARA FALLS DINNER & TOUR

Discover the Wonder of Niagara

Niagara Falls is the collective name for three waterfalls—the Horseshoe Falls, the Bridal Veil Falls and the American Falls—that overlap the international borders of Canada and the United States. About 600,000 gallons of water travel down Niagara Falls every second. The water falls at 32 feet per second over the Falls, hitting the base of the Falls with 280 tons of force at the American and Bridal Veil Falls and 2,509 tons of force at the Horseshoe Falls.

Niagara Falls is capable of producing over 4 million kilowatts of electricity, which is shared by the United States and Canada. In November 1896, electrical power was transmitted from the Adams Power Plant in Niagara Falls, New York, to Buffalo, New York. This was the first time in the world that alternating current was transmitted over a long distance.

The first person to see and describe Niagara Falls in depth was Father Louis Hennepin, a French priest who accompanied LaSalle on his expedition to the Niagara region in 1678.

Tuesday, June 20, 2017 | 4:30 – 9:00 p.m.

Dinner at the Top of the Falls Restaurant / Niagara Falls State Park 5:30 – 8:30 p.m.







Niagara Falls State Park

Situated along the U.S./Canadian border, Niagara Falls State Park is the oldest state park in the U.S. Established in 1885 as the Niagara Reservation, it was the first of several such reservations that eventually became the cornerstones to the New York State Office of Parks, Recreation and Historic Preservation. The park stretches over 400 acres, with close to 140 acres of that under water. Frederick Law Olmsted, was a visionary for Niagara Falls State Park. He also designed Central Park in New York City.

ADDITIONAL TOUR OPTIONS

Instead of the Niagara Falls State Park, guests may choose one of the two following options:

Maid of the Mist: America's most amazing boat ride!

6:45 – 8:30 p.m.

See the raging currents! Hear the deafening thunder! And feel the refreshing mist of 600,000 gallons of water falling before your eyes every second! Experience it all aboard the legendary Maid of the Mist.



It's the one and only tour boat fleet whose captains have safely navigated the mighty waters of the Niagara Gorge for over 100 years, taking tens of millions of visitors directly into the center of the swirling mist.



First Maid of the Mist

The first Maid of the Mist, a side-wheel steamboat ferry with twin smokestacks, commands the mighty Niagara. Christened in 1846, it was large enough to carry a stagecoach and horses. In 1848, construction of a suspension bridge curtailed business and the Maid of the Mist was re-branded as a sightseeing adventure that still operates to this day.

Niagara Falls Bridge Commission and Operations Center Tour* 6:45 – 8:30 p.m.



Approximately 3 million cars and 400,000 trucks pass over the Rainbow, Lewiston and Whirlpool Bridges per year. These three bridges are operated and maintained by the Niagara Falls Bridge Commission. As a major border crossing, Customs and Immigration functions are required on both sides of these bridges. Over the years, numerous Intelligent Transportation Systems (ITS) have been implemented by the Niagara

Falls Bridge Commission. Join us for a presentation detailing ITS deployments including use of predictive analytics for wait time estimation leveraging Bluetooth/wireless data and video analytics to provide automatic alerts on objects/direction of objects for safety and incidence management and a tour of the Niagara Falls Bridge Commission Operations Center.

*CUTC guests need to sign up for this tour on or before Tues., June 20 at 1 p.m.

SPEAKERS



Jim Appleton

Division Chief, Caltrans Division of Research, Innovation and System Information

Jim Appleton began his career with the California Department of Transportation (Caltrans) as an entry level Land Surveyor in 1989. In his nearly 30 years with Caltrans, he has had a wide range of management assignments, culminat-

ing in his concurrent roles as the Division Chief for Research, Innovation, and System Information; and as Caltrans' first Geospatial Information Officer. Appleton is a certified Project Management Professional, certified Photogrammetrist, and a licensed Land Surveyor. He is a member of the Advisory Council for the Geomatics Engineering Program at California State University Fresno; the TRB Conduct of Research Committee; the AASHTO Research Advisory Committee (RAC 4); and he is the California TRB State Representative.



Ines Aviles-Spadoni

Research Program Manager; Southeastern Transportation Research, Innovation, Development, and Education Center; University of Florida Transportation Institute

Ines Aviles-Spadoni is the research program manager for the Southeastern Transportation Research, Innovation, Development, and Education Center (STRIDE), housed at the

University of Florida Transportation Institute (UFTI). STRIDE is the USDOT 2012 and 2016 regional (Southeast) University Transportation Center (UTC). She has also served as the research program manager from 2007 to 2013 for the Center for Multimodal Solutions for Congestion Mitigation (CMS) – a grant-funded Tier-1 UTC at the University of Florida. Ms. Aviles-Spadoni was also instrumental in establishing the first WTS (Advancing Women in Transportation) student chapter at the University of Florida in 2010 and currently serves as its advisor. She also serves as the co-chair of ABG10(1), which is the TRB Joint Subcommittee on "Ahead of the Curve: Mastering the Management of Transportation Research". Ms. Aviles-Spadoni holds a master's degree from Michigan State University and a bachelor's degree from the Inter American University of Puerto Rico. She has worked at the University of Florida since 1999 and has been involved with the transportation industry for almost a decade.



Atorod Azizinamini

Professor and Chair, Civil and Environmental Engineering Department, Florida International University

Atorod Azizinamini, P.E., is Vasant Mistry Professor of Civil Engineering, Director, Accelerated Bridge Construction University Transportation Center and Chairperson

of Civil and Environmental Engineering Department at Florida International University, in Miami, Florida. Dr. Azizinamini was Distinguished College of Engineering Professor and Director of National Bridge Research Organization at University of Nebraska-Lincoln before joining FIU in January 2011. His research focuses in bridge engineering and he has carried out more than \$40M research as principal investigator. He has developed several bridge engineering products and systems that are being used nationally and internationally. Under SHRP2 R19A, he led the development of the first and most comprehensive document devoted to service life design of concrete and steel bridges. He has published more than 200 technical publications related to structures and bridge engineering. He routinely gives keynote talks at major national and international bridge engineering conferences. He has received a number of national awards, including: 2015 White House Champion of Change: Transportation Innovator, American Institute of Steel Construction (AISC), Special Achievement Award and several bridge innovation awards.



Chandra Bhat

Director, Center for Transportation Research; University Distinguished Teaching Professor; Adnan Abou-Ayyash Centennial Professor in Transportation Engineering; Department of Civil, Architectural and Environmental Engineering, The University of Texas at Austin

Chandra R. Bhat is the Director of the Center for Transportation Research (CTR) and the Adnan Abou-Ayyash Centennial Professor in Transportation Engineering at The University of Texas at Austin, where he has a joint appointment between the Department of Civil, Architectural and Environmental Engineering (CAEE) and the Department of Economics. Bhat is a world-renowned expert in the area of transportation and urban policy desian, with far reaching implications for public health, energy dependence, greenhouse gas emissions, and societal quality of life. Methodologically, he has been a pioneer in the formulation and use of statistical and econometric methods to analyze human choice behavior. His current research includes the social and environmental aspects of transportation, planning implications of connected and automated smart transportation systems (CASTS), and data science and predictive analytics. He is a recipient of many awards, including the 2017 Lifetime Achievement in Transportation Research and Education Award (Academic) from the Council of University Transportation Centers (CUTC). This award is to "identify individuals who have had a long history of significant and outstanding contribution to university transportation education and research resulting in a lasting contribution to transportation." He also received the 2015 ASCE Frank Masters Award and the 2013 German Humboldt Award. In 2016, he was listed as one of the top ten transportation thought leaders in academia by CUTC and The Eno Foundation. He is a top-cited transportation engineering researcher.



Alasdair Cain

Director of Research, Development and Technology Coordination, USDOT

Alasdair Cain is the Director of Research, Development and Technology Coordination in the Office of the Assistant Secretary for Research and Technology (OST-R) at the U.S. Department of Transportation (DOT). Mr. Cain's primary role

is ensuring that the Department's research portfolio, worth over \$1B per year, is effectively coordinated across the nine DOT Operating Administrations that fund research. Mr. Cain also works to ensure that the Department's research activities are coordinated with other Federal agencies and the transportation research community, both within the U.S. and abroad. Mr. Cain's background is in transportation research. Prior to joining DOT, he spent his career working for academic institutions in the U.S. and the United Kingdom. He specialized in international research collaboration, public transportation research and system evaluation, bus rapid transit, traffic congestion mitigation, and market research/public consultation. A native of Scotland, Mr. Cain holds a Bachelor's degree in civil engineering from the University of Glasgow and a Master's degree in transportation engineering from the University of South Florida.



Ivette Cruzado

Associate Professor, Civil Engineering and Surveying Department, University of Puerto Rico at Mayagüez

Ivette Cruzado is an associate professor in the Civil Engineering and Surveying Department of the University of Puerto at Mayagüez (UPRM). She has a PhD in civil engineering from Penn State University, a Master of Science in civil engi-

neering from Michigan State University and a Bachelor of Science degree in civil engineering from UPRM. Dr. Cruzado serves as a member of the Transportation Research Board (TRB) Geometric Design Committee (AFB10) and as the advisor of the UPRM student chapter of the Institute of Transportation Engineers (ITE).



Janet Daly

Indexing Manager, Transportation Research Board

Janet Daly is the Indexing Manager at the Transportation Research Board of the National Academies of Sciences, Engineering, and Medicine. Janet provides training for indexers and manages quality control for the Transportation Research Information Services databases, including TRID

and RIP. In addition, she is the administrator of TRB's Transportation Research Thesaurus. She has indexed material for the TRIS databases for over 15 years. Before joining TRB, Janet worked as a reference librarian and database indexer for several association, research, and government libraries. Janet holds a bachelor's degree from the College of William and Mary and a master's degree in library science from the University of Maryland.



Victoria Deguzman

Associate Director, Administration for METRANS Transportation Center

Victoria Deguzman is the Associate Director, Administration for METRANS Transportation Center, where she leads the administration and student programing of both the umbrella organization and its grant-based centers, including the Pacif-

ic Southwest Region 9 UTC. While at METRANS, Victoria has created, developed, launched, and managed numerous successful student enrichment programs including a professional mentor program; a weekly transportation news, events, opportunities, and employment newsletter for students; an employment database and referral program; industry engagement opportunities; a professional writing program; and student employment and supervisory positions within the Center. Victoria holds a Doctorate in policy, planning, and development; a Masters in real estate development; and a Bachelors in communications from USC.



Jennifer Dill

Professor of Urban Studies and Planning, Portland State University; Director, Transportation Research and Education Center

Jennifer Dill is a professor of urban studies and planning at Portland State University and Director of the Transportation Research and Education Center (TREC). TREC houses

the National Institute for Transportation and Communities (NITC), one of the national university transportation centers. Dr. Dill's research focuses on the relationships between transportation, land use, health, and the environment, with a focus on bicycling and walking. Prior to entering academia, Dr. Dill worked as an environmental and transportation planner in California.



Charles R. Ducker Jr

Sr. Intellectual Property Counsel, Office of General Counsel, USDOT

Charles Ducker is the U.S. Department of Transportation's (USDOT's) senior intellectual property attorney. He earned his Bachelor of Science degree in aerospace engineering (1992) and his Juris Doctorate (1997) from the University

of Alabama. Having practiced law for 20 years, Charles has been with the USDOT for the past four years. During that time, he has become one of the primary drafters of many of the Department's science-related policies. He led the multi-modal USDOT team that wrote the USDOT Public Access plan and continues to represent USDOT on the ongoing Interagency Working Group on Open Science. He has spoken at numerous public events regarding Public Access and Open Data.



Denise Dunn

Federal Grants Manager, USDOT

Denise Dunn is a Federal Grants Manager with the Department of Transportation. She worked in government service for over 15 years as a Program Coordinator for a non-profit space research organization at NASA's Goddard Space Flight Center, for USDOT's Commercial Remote Sensing

Program, and for the University Transportation Centers Program. Denise joined Federal service in 2008 and became a UTC Grants Manager shortly thereafter. Ms. Dunn received her BS degree in business and management from the University of Maryland University College. She also holds a Grants Management Certificate from Management Concepts, Inc., and has served as a Contracting Officer's Technical Representative having completed the Federal Acquisition Institute's Program. She is currently preparing for the Certified Associate in Project Management (CAPM)® certification. Denise is a native Washingtonian and currently resides in Hanover, Maryland.



Lily Elefteriadou

Barbara Goldsby Professor of Civil Engineering; Director, University of Florida Transportation Institute; Interim Department Chair; Industrial and Systems Engineering, University of Florida

Lily Elefteriadou is the Director of the UF Transportation Institute (UFTI), and the Barbara Goldsby Professor of

Civil Engineering at the University of Florida. Her research focus is traffic operations, traffic flow theory and simulation. She is the principal investigator of the USDOT-funded Regional University Transportation Center for Region 4 (Southeast Transportation Research Innovation Development and Education, or STRIDE). She has served as the principal investigator for several other federal and state projects, funded by the National Cooperative Highway Research Program (NCHRP), the National Science Foundation (NSF), the Federal Highway Administration, and FDOT. She is the Vice President of the Executive Board of the Council of University Transportation Centers (CUTC).



Liesl Folks

Dean, School of Engineering and Applied Sciences and Professor of Electrical Engineering, University at Buffalo

Liesl Folks is dean of the School of Engineering and Applied Sciences and a professor in electrical engineering at the University at Buffalo. Prior to joining UB in 2012, she spent 16

years in research and development in the magnetic data storage industry in Silicon Valley, working for IBM, Hitachi and Western Digital. Her research is in the fields of magnetic materials and devices, nanoscale metrology, and spinelectronic devices. She was president of the IEEE's Magnetics Society in 2013-2014 and in 2012, she served on the congressionally mandated panel for the Triennial Review of the National Nanotechnology Initiative, facilitated by the National Academy of Sciences. Folks is also the 2013 recipient of the AVS Excellence in Leadership Award, a national award recognizing her mentorship of science and engineering students. She holds a BSc (Hons) and a PhD, both in physics, from The University of Western Australia, as well as an MBA from Cornell University.



LaChaundra M . Graham

Grant Manager, University Transportation Centers, Office of the Assistant Secretary for Research & Technology

LaChaundra Graham returned to the USDOT in the UTC program as a Grant Manager in January 2017 after having worked for five years with the Board of Education for Prince

George's County Public Schools, where she managed fiscal resources for the systems' charter, contract, and specialty schools and the Division of Teaching & Learning. Prior to working for the Board of Education, LaChaundra worked for the USDOT from 1999-2012 in various capacities, across multiple modes, with her last appointment being in the Office of the Secretary, Under Secretary for Transportation Policy (OST-P). In OST-P, LaChaundra was the lead grant manager in the TIGER Discretionary Grant program implementation under which USDOT awarded grants for surface transportation projects that will have a significant impact on the nation, a metropolitan area, or a region. LaChaundra holds a Bachelor's of Science in political science and economics from Towson State University, a dual Masters, a Master of Science in management and Master of business administration from the University of Maryland University College, and is completing a Doctorate in business administration focusing on organizational leadership in fall of 2017. LaChaundra is the proud mother of two children, Jazmyn and Jayden, and resides in Prince George's County Maryland.



Genevieve Giuliano

Department of Urban Planning and Spatial Analysis, Sol Price School of Public Policy, University of Southern California

Genevieve Giuliano is Margaret and John Ferraro Chair in Effective Local Government in the Sol Price School of Public Policy, University of Southern California, and Director of

the METRANS joint USC and California State University Long Beach Transportation Center. Her research areas include relationships between land use and transportation, transportation policy analysis, travel behavior, and information technology applications in transportation. Current research includes examination of relationships between land use and freight flows, spatial analysis of freight activity location, impacts of freight activities on local communities, and applications for transportation system analysis using archived real-time data. She has published over 170 papers. Professor Giuliano is a past Chair of the Executive Committee of the Transportation Research Board, and of the Council of University Transportation Centers. She has received numerous distinguished scholarship and service awards. She is a former member of the ITS Joint Program Advisory Committee and the National Freight Advisory Committee. She has participated in many TRB policy studies; currently she is serving on the Committee on the Future of the Interstate Highway System.



Jacob Heiden

Research Support Coordinator, National Advanced Driving Simulator, SAFER-SIM UTC, University of Iowa

Jacob Heiden began working in transportation research as an undergraduate student at the University of Iowa. He was involved in data collection for clinical and behavioral studies at the National Advanced Driving Simulator. He

graduated from the University of Iowa in 2015 with a BA in interdepartmental studies and began working specifically for SAFER-SIM. Mr. Heiden's initial UTC responsibilities included coordinating and exhibiting at education and outreach events, such as classroom visits, STEM festivals, and other activities in the local community. Currently, Jacob continues to expand SAFER-SIM's education and outreach efforts through innovative collaborations while coordinating and managing other UTC administrative tasks.



Jill Hough

CUTC President; Associate Professor, North Dakota State; University Director of UGPTI's Small Urban and Rural Transit Center

Jill Hough is the director of Upper Great Plains Transportation Institute's Small Urban and Rural Transit Center, focusing on research, education, and training. Hough, with more

than 20 years of experience in transportation, has authored or co-authored more than 60 research reports and journal articles. She is the instructor of two graduate courses, "Public Transportation" and "Leadership, Ethics and Academic Conduct." Dr. Hough served two three-year terms on the National Academies of Science Transit Cooperative Research Program Oversight Project Selection (TOPS) committee, helping prioritize transit research needs in the United States. Hough testified on rural livability for the USDOT's Transportation Reauthorization Outreach Tour and she testified before the U.S. Senate Budget Committee regarding the importance of infrastructure in rural areas.



Michael P. Hunter

Associate Professor; Director of the Georgia Transportation Institute; Director of the National Center for Transportation System Productivity and Management; Georgia Institute of Technology

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Michael P. Hunter joined the faculty of the Georgia Institute of Technology School of Civil and Environmental Engineering in the fall of 2003. Dr. Hunter has been highly active in research, teaching, and service. He has conducted research for a variety of sponsors including the National Science Foundation, the U.S. Department of Transportation, the Georgia Department of Transportation, as well as others. Since 2012, Dr. Hunter has led two significant transportation research centers, the Georgia Transportation Institute (GTI) and the National Center for Transportation Systems Productivity and Management (NCTSPM). Dr. Hunter's primary areas of interest are transportation simulation, operational performance and control, and traffic safety.



Tiffany A. Jackson, CAE, CQIA

Director, Membership and Chapter Development, WTS International

Tiffany A. Jackson is a Certified Association Executive (CAE), with over 20 years of experience working for global non-profit associations. She earned the CAE credential in 2007 from the American Society of Association Executives

(ASAE). CAE is a designation that elevates professional association practitioner standards, and is a mark of excellence in the field of professional association management. She joined WTS International in November 2012 as chapter development director and had the added role of membership director in 2015. Prior to joining WTS International she was the Global Member Development Manager for ASQ Global, a subsidiary of the American Society for Quality (ASQ). While at ASQ Global she worked with volunteers and member-driven teams to develop international member units in Latin America, Asia, and the Middle East. Tiffany has traveled and conducted business for associations in 25 different countries including: Argentina, Brazil, China, India, Malaysia, Peru, Turkey, Singapore, South Korea, UAE, UK, and Qatar. She is passionate about the work she does with non-profit associations and is driven by helping association leaders achieve their vision for maximum success.



David M. Jared

Assistant State Research Engineer, Georgia Department of Transportation

David Jared is the Assistant State Research Engineer in Georgia DOT's Office of Organizational Performance Management, where he manages GDOT's research program. Mr. Jared joined GDOT and this program in 1994, and his

research interests include asphalt pavement technology, roadway maintenance, and traffic safety. He is a member of the AASHTO Standing Committee on Research; AASHTO Research Advisory Committee, NCHRP Synthesis Selection Panel, and TRB Conduct of Research Committee. He holds a Bachelor's Degree in civil engineering from Georgia Tech and is a licensed engineer in Georgia.



Robin Kline

University Grants Manager, USDOT

Robin Kline is a Federal Grants Manager with the U.S. Department of Transportation's (USDOT) University Transportation Centers program in the Office of the Assistant Secretary for Research & Technology. Prior to her work with USDOT, Robin spent more than 25 years working with inter-

national academic programs at the Department of State, focusing primarily on Eastern Europe and the former Soviet Republics, including tours of duty with the State Department's Bureau of International Narcotics and Law Enforcement as a policy coordination officer, and with the Carnegie Commission for Preventing Deadly Conflict. She has a MA and Doctorate from Georgetown University, both of which examined the influence of religion on politics in the U.S.



Catherine T. Lawson

Associate Professor, Department of Geography and Planning; Director of the Lewis Mumford Center/ Albany Visualization and Informatics Labs; University at Albany

Catherine T. Lawson is an Associate Professor in the Department of Geography and Planning, and Director of the

Lewis Mumford Center/Albany Visualization and Informatics Labs (AVAIL) at the University at Albany. Her research interests include advanced uses of archived intelligent transportation systems (ITS) data and spatial analysis/geographic information systems (GIS) applications for transportation planning and analysis for freight, transit (including ferries), and passenger travel. She is a member of AP000 Public Transportation Executive Group, and of ABJ00 Data Section, and Chair of the Joint Subcommittee on Transformative Trends in Transit Data. Previously, as Chair of the Urban Transportation Data and Information Systems Committee (ABJ30), she received a TRB Blue Ribbon Award for her contributions to advancing uses of urban transportation data.



Kevin Majka

Senior Scientist, Public Safety & Transportation Group, CUBRC

Kevin Majka is a senior scientist at CUBRC in Buffalo, N.Y. and a key contributor to projects at in the Public Safety and Transportation Group. He has a PhD in geography from the University at Buffalo with specializations in transportation

modeling and geographic information systems. Dr. Majka is experienced in spatial analysis, including statistical pattern recognition, demographic analysis, interpreting quantitative and qualitative environmental data, applications of artificial intelligence, and the development, management, and analysis of complex structured/unstructured databases. While at CUBRC, he has led or

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supported various projects for U.S. Department of Transportation agencies including the Federal Highway Administration, the National Highway Traffic Safety Administration, and several State Departments of Transportation, all of which have focused on improving transportation safety. His current research is primarily focused on transportation safety and driver behavior as well as utilizing informatics-based approaches to design tools which can efficiently ingest, align, analyze, and visualize massive amounts of transportation related data.



Manuel Rodríguez-Martinez

Professor, Computer Science and Engineering, University of Puerto Rico Mayagüez

Manuel Rodríguez-Martinez is a professor of computer science and engineering at the University of Puerto Rico Mayagüez. Dr. Rodriguez-Martinez completed a PhD in computer science and a MS in computer science at the Uni-

versity of Maryland. His research interests focus on cloud computing, distributed databases, and mobile computing. He is the team leader for the Advanced Data Management Lab at University of Puerto Rico Mayagüez. He is also the recipient of a 2005 National Science Foundation CAREER award.



Natalia Ruiz Juri

Director, Network Modeling Center

Natalia Ruiz Juri is the Director of the Network Modeling Center (NMC), where she leads the development and enhancement of advanced regional traffic modeling tools for their use in practice. Natalia's research seeks to combine new data sources, advanced computational resourc-

es and modeling in order to enable more efficient transportation systems. In collaboration with the Texas Advanced Computing Center (TACC), Natalia has developed a powerful tool for the visualization of advanced modeling results, and enabled the use of high-performance computing systems in real-world modeling. Natalia's most recent research interest is the continued development of Data Rodeo, a collaborative effort with TACC to build an environment to promote replicable and transferable data-centric research by providing access to large and complex data from multiple sources.



Adel W. Sadek

Professor, Department of Civil, Structural and Environmental Engineering; Director, Institute for Sustainable Transportation and Logistics; Director, Transportation Informatics Tier I University Transportation Center; University at Buffalo

Adel Sadek is a professor in the Department of Civil, Structural and Environmental Engineering at the University at Buffalo (UB). He also serves as the

Director of UB's Institute for Sustainable Transportation and Logistics, and the Director of the Transportation Informatics Tier I University Transportation Center. Before joining UB in 2008 to lead the development of the department's interdisciplinary program in transportation systems engineering, Dr. Sadek was an associate professor in the School of Engineering at the University of Vermont (UVM), and held a secondary appointment in the Department of Computer Science. He also served as co-Director of UVM's Complex Systems Center. Dr. Sadek is the recipient of the 1998 Milton Pikarsky Award for the best dissertation in the field of Transportation Science and Technology, awarded by the Council of University Transportation Centers, a National Science Foundation (NSF) CAREER award, and a 2011 IBM Smarter Planet Faculty Innovation Award, Dr. Sadek's research interests span a wide range of topics including transportation modeling and simulation, intelligent transportation systems, artificial intelligence applications in transportation, traffic engineering, transportation planning, and infrastructure management. His research has been most recently funded by several agencies, including NSF, the Federal Highway Administration, New York State Energy Research and Development Authority (NYSERDA), New York State Department of Transportation (NYSDOT), and Region II University Transportation Research Center (UTRC2), among others. Dr. Sadek is coauthor of two transportation textbooks, along with more than 120 papers in peer-reviewed journals and refereed conference proceedings. He has served as Associate Editor of the Transportation Research – Part C journal, and is on the Editorial Board of the Journal of Intelligent Transportation Systems. He has also served as the co-chair of the TRB committee on Artificial Intelligence and Advanced Computing Applications (AB|70), and as a member on the committee on Surface Transportation Weather.



Caesar Singh, P.E.

Director of University Grants Program, Office of Research and Technology, USDOT

Caesar Singh is the Director of University Grants Program at the Office of Research and Technology in the U.S. Department of Transportation, where he oversees grant managers who administer and manage grant awards at institutions

of higher education for the program. Mr. Singh also manages the Commercial Remote Sensing and Spatial Information Technologies Program, which is a competitive program intended to validate commercial remote sensing and spatial information technologies for application to national transportation infrastructure development, construction and condition assessment. Mr. Singh has over 30 years of experience in a diverse range of surface transportation areas, from remote sensing technology applications in transportation, transportation planning, traffic/highway engineering, intelligent transportation systems, to supply chain management/transportation logistics. Mr. Singh received his BS in civil engineering from the Indian Institute of Technology, Madras, and his MS in transportation planning and engineering from the University of Illinois, Chicago. He is a registered licensed professional engineer in Maryland and South Carolina.



Amy Stearns

University Grants Manager, USDOT

Amy Stearns has been a Federal Grants Manager for the U.S. Department of Transportation's (USDOT) University Transportation Centers Program for 25 years. Prior to joining USDOT, she worked at the U.S. International Trade Commission, the American Enterprise Institute think tank,

Colbert Artists Management musicians' booking agency, and her family's bookshop. Amy grew up in New York, London, and Chicago; has a BA in music from the College of William and Mary in Virginia; and holds a Certificate in Grants Management.



Denver Tolliver

Director, Upper Great Plains Transportation Institute, North Dakota State University

Denver Tolliver is director of the Upper Great Plains Transportation Institute (UGPTI) at North Dakota State University, NDSU's Transportation and Logistics education program, and the Mountain-Plains Consortium (USDOT's Region 8

University Transportation Center). During his career, Denver has been awarded more than \$25 million in grant funding and authored or co-authored more than 160 research reports and journal publications. As UGPTI director, Denver leads an organization of more than 40 faculty and staff with research expenditures of roughly \$10 million per year. Denver holds a PhD in environmental design and planning and Master of urban and regional planning from Virginia Tech University.



Dawn Tucker-Thomas

University Grants Manager, USDOT

Dawn Tucker-Thomas currently serves as a Federal Grants Manager in the Office of the Assistant Secretary for Research and Technology at the U.S. Department of Transportation (USDOT). She oversees more than \$60 million in surface transportation research grants administered to

universities, a federally funded research laboratory, and National Academy of Sciences to promote advanced and innovative solutions and technologies and to advance transportation. Prior to her current position, Dawn has worked in the transportation industry both public and private sectors for 25 years specializing in transportation planning, policy and rulemaking, compliance and enforcement, research and analysis, and airport and air carrier operations and management. Dawn currently serves as the Finance Director for the Educational and Charitable Foundation, which is the philanthropic arm of Alpha Kappa Alpha Sorority, Lambda Kappa Omega Chapter and as Legislative Chair of USDOT's Women on the Move Chapter of Federally Employed Women. Dawn received her BS in airway science from Hampton University, MS in Transportation Planning from Morgan State University, and JD from Concord University School of Law.



Kevin Womack

Director, Office of Research, Development & Technology, USDOT

Kevin Womack currently serves as the Senior Executive for the Transportation Safety Institute in Oklahoma City and the Office of Research, Development & Technology located at the U.S. Department of Transportation headquar-

ters in Washington, D.C. Prior to accepting this position, he was a Professor of Civil Engineering and Director of the Utah Transportation Center at Utah State University, where he began work in 1989. Also while at Utah State University, he served in the university's central administration as an Associate Vice President for Business and Finance. Dr. Womack's past activities include a six-year term on the American Society of Civil Engineers (ASCE) National Transportation Policy Committee (three years as chair, ended in November 2008); service as the ASCE Student Chapter advisor for Utah State University for seven years (1989-1996); and a six-year term on the National Academies Research and Technology Coordinating Committee (advisory to the FHWA). Dr. Womack received his Bachelor of Science degree (1980) and PhD degree (1989, civil engineering) from Oregon State University, with a Master's degree in civil engineering from the University of Pennsylvania (1985).



Diane Woodend Jones

Chairman of the Board, Lea+Elliott, Inc.

Diane Woodend Jones, AIA, AICP is the Chairman of the Board and Principal of Lea+Elliott, Inc. Diane has served in the management of the operations as well as on the firm's Board of Directors for almost two decades. While serving on the Board of Directors, Diane spearheaded and currently

continues to lead the firm's strategic planning initiatives. During this tenure, the company has grown into an international practice. Diane is the Chair of the Women's Transportation Seminar's International Board of Directors. Diane also serves as a Trustee on the Mineta Transportation Institute Board and Vice Chair of the UTA CAPPA Advisory Board. In addition, Diane is a National Association of Corporate Directors Governance Fellow. Through her active memberships in many philanthropic and professional organizations, Diane frequently travels across the country to be a guest speaker. Diane began her career working for the DFW International Airport Board, and later managed a private architectural practice group before completing an MBA and joining Lea+Elliott, Inc.



Shanjiang Zhu

Assistant Professor, Sid and Reva Dewberry Department of Civil, Environmental, and Infrastructure Engineering, Volgenau School of Engineering, George Mason University

Shanjiang Zhu is an Assistant Professor of Transportation Planning and Engineering at George Mason University

(GMU). He graduated from Tsinghua University with a BS degree in 2003 and a MS in 2005. During 2001-2003, he studied at the Ecole Centrale de Nantes, in France, as a dual-degree student. He obtained his PhD degree at the University of Minnesota, Twin Cities, in 2010 and worked two years as a research scientist at the University of Maryland before joining GMU. Dr. Zhu is experienced in travel demand modeling, travel behavior analysis, GPS-based travel survey methods, integrated transportation planning and simulation models, traffic incident management, and transportation economics. Dr. Zhu is a Co-PI of the TransINFO UTC that focuses on Big Data studies in transportation. His research work has also been funded by NSF, FHWA, VDOT and Virginia OPT3 office. He is Virginia Governor's appointee on the Technical Advisory Board of Northern Virginia Transportation Authority and is a fellow of the GMU P3 policy center. Dr. Zhu is the recipient of a 2014 Young Research of the Year Award, International Transport Forum, the Organization for Economic Cooperation and Development (OECD).



Charles F. Zukoski

Provost and Executive Vice President for Academic Affairs, University at Buffalo

An internationally recognized scholar in chemical engineering and accomplished higher education leader, Charles F. Zukoski was appointed provost and executive vice president for academic affairs at the University at Buffalo in 2012. His

research focuses on the chemical and physical properties that underlie changes in the state of dispersion of colloidal particles. A member of the National Academy of Engineering, he was named one of the "Hundred Chemical Engineers of the Modern Era" by the American Institute of Chemical Engineers. Zukoski joined UB from the University of Illinois at Urbana-Champaign, where he was vice chancellor for research and Elio Eliakim Tarika Chair of Chemical and Biomolecular Engineering. He holds a bachelor's degree in physics from Reed College and a PhD in chemical engineering from Princeton University



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