2019 Tran-SET Conference

April 11-12, 2019 | Hosted by the University of Texas at San Antonio (UTSA) Conference Center | San Antonio, TX

Welcome

Welcome to the 2019 Tran-SET Conference in San Antonio, Texas!

On behalf of the organizing committee, I am honored to welcome you to the Transportation Consortium of South-Central States (Tran-SET) Conference held in the city of San Antonio, Texas.

Tran-SET is a University Transportation Center (UTC) comprising of 11 partnering institutions across five states (Arkansas, Louisiana, New Mexico, Oklahoma, and Texas), with an aim to **address the accelerated deterioration of our transportation infrastructure through the development, evaluation, and implementation of cutting-edge technologies, novel materials, and innovation construction management processes: from research to implementation.** We believe that our focus on implementation makes us unique and our strong alliances with industry, academic, and government agencies will help us succeed and reach our goals.

The 2019 Tran-SET Conference will bring together academics, industry professionals, state DOTs, and other government agencies interested in solving transportation challenges facing Region 6. Participants in this conference will be introduced to Tran-SET's research, education, workforce development, and technology transfer activities. Attendees will see a variety of technical contributions covering multiple transportation fields, including structures, geotechnical, safety, intelligent transportation systems, policy and planning, pavements, asphalt and concrete materials. In parallel, a Student Poster Competition comprising of several student posters from different institutions in the region are being showcased in the 2019 Tran-SET Annual Conference.

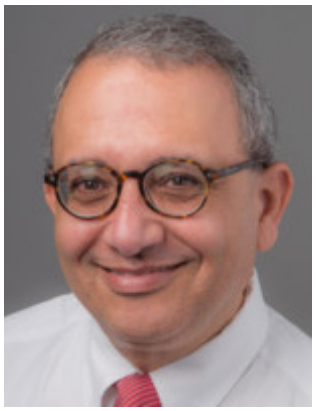
Please enjoy the technical sessions, poster competition and the conference! Your presence is an indication that you are committed to making a positive difference, not only to our transportation industry, but also throughout your local state jurisdiction.

We hope you have a productive meeting and enjoy all that San Antonio has to offer! If there is anything I can do, please do not hesitate to contact me via email at marwa@lsu.edu or the Tran-SET team at transet@lsu.edu.

Sincerely,
Marwa Hassan, Ph.D., PE Civil (VA)
Director of Tran-SET UTC

Keynote Speakers

Dr. Magdy Mikhail, Director of Pavement Asset Management of Texas Department of Transportation



Dr. Magdy Mikhail graduated with a Bachelor degree in Civil Engineering from Ain Shams University, Cairo, Egypt in 1985, a Master's Degree in Materials Engineering from the American University in Cairo Egypt in 1990, and a Ph.D. in Civil Engineering from Arizona State University with a specialty in pavements and highway materials in 1996. He has been working in the field of pavements and highway materials for the last 27 years. He worked with consulting firms in the United States and overseas. He also worked with the Superpave center with the University of Nevada Reno.

Dr. Mikhail has been working with Texas Department of Transportation (TxDOT) for the last twenty years. He started his career with TxDOT as an Engineer in the bituminous section in 1999. He was the Pavement Engineer for the Houston District from 2000 to 2003 and was the Assistant Director of the Flexible Pavement Branch with the Construction Division from 2003 to 2007. He became the Technical Operations Manager for the Materials & Pavements section in July 2007. Currently, he is the Director of the Pavement Asset Management Section overseeing asset management, pavement management, pavement preservation, pavement design and pavement data collection.

In October 2017, the Texas Department of Transportation's (TxDOT) Pavement Asset Management team, led by Dr. Magdy Mikhail, was presented the "Journey Toward Excellence" award, given jointly by the Western Association of State Highway and Transportation Officials (WASHTO) and TxDOT, for their recently implemented Pavement Management System (PMS).

Dr. Shawn Wilson, Secretary of the Louisiana Department of Transportation and Development

Dr. Shawn Wilson was appointed Secretary of the Louisiana Department of Transportation and Development (LaDOTD) by Governor John Bel Edwards in January 2016 after more than 10 years of executive service at LaDOTD.

Secretary Wilson earned a Bachelor's degree in Urban and Regional Planning from the University of Louisiana and holds a Master of Public Administration degree, as well as a Ph.D. in Public Policy from the Nelson Mandela School of Public Policy and Urban Affairs from Southern University.

Since his appointment, Dr. Wilson has been a tireless advocate for new revenue, maximizing federal dollars available to Louisiana, advancing a balanced and comprehensive transportation policy for Louisiana, and ensuring the department is more collaborative in its work at every level.

Under his leadership, LaDOTD was successful at securing nearly $150 million additional Federal dollars for I-10 widening from I-49 to New Orleans, for the Baton Rouge I-10 bottleneck, and for the shortest Design Build procurement in the state's history, which is underway to widen I-10 from Highland Road to LA 73.

In addition, under his leadership, LaDOTD has been able to assist communities with alternative fueled transit assets, focus efforts on advancing passenger rail, and helped launch a bike share in the City of Baton Rouge, LA. Most recently, LaDOTD has turned its focus to procuring $650 million in GARVEE Bonds for two design build projects, a major urban interstate reconstruction and the state's first public private partnership.

Guest Speakers

Prof. Dallas Little, Professor of Civil Engineering at Texas A&M University

Prof. Dallas Little is Regents Professor and E. B. Snead Endowed Chair Professor of Civil Engineering at Zachry Department of Civil Engineering at Texas A&M University. Prof. Little is also a Senior Research Fellow at Texas A&M Transportation Institute (TTI) and was the first researcher to hold that position. He is also a distinguished member of the American Society of Civil Engineers (ASCE) – one of less than 200 to hold that rank out of more than 150,000 ASCE members.

Prof. Little has served as a principal investigator over an array of national research projects for such sponsors as FHWA, NCHRP, the Air Force Office of Scientific Research and the National Science Foundation. He has also served as principal investigator on more than $32 million dollars in research during his academic career.

Prof. Little has extensive design, analysis and forensic engineering experience with companies on a world-wide basis. As a consultant, he has been involved in numerous major projects including: Denver International Airport; proposed Qatar-Bahrain Causeway; airfield design reviews for the Central Command in Iraq and Afghanistan; airfield design projects for Houston Airport Systems; design-build toll highway systems such as the widening of IH 635 between Fort Worth and Dallas, Texas, the SH 130 south Texas project, and preliminary engineering investigation of subgrade design for the Grand Parkway in Houston; and soil stabilization implementation projects in Australia, New Zealand, and Canada.

Professor Little has authored approximately 360 significant reports (including over 160 journal articles). He has received 11 awards for his technical papers including three Emmons Award from the Association of Asphalt Paving Technologists (AAPT).

Prof. Hainian Wang, Associate Dean of the School of Highway of Chang'an University

Dr. Wang is a Professor in Highway School of Chang' an University, Xi'an, China. He obtained his Ph.D. in Civil Engineering from Chang' an University in 2007. He was invited as a Visiting Researcher in the Michigan Technological University in 2010. He is serving as the Associate Dean of the Highway School, Chang' an University since May 2015.

His research focuses on meso-structure and virtual test technology of asphalt mixtures, asphalt pavement structure and material durability in permafrost regions, bio-asphalt preparation technology, rheological behavior and performance optimization, and recycling of waste tire rubber powder in asphalt pavements.

He has published more than 100 academic papers in international journals and conference proceedings. Dr. Wang has 18 patents and 8 awards for scientific research. As the main organizer, he organized three international academic conferences, edited three international conferences proceedings, and published four special issues as Guest Editor of international journals. He is a principal investigator for more than 10 national and state-level research projects. He is serving in more than 10 technical committees and organization committees for international conferences.

Tran-SET Team

ABOUT TRAN-SET

The theme of the Center is "Solving Emerging Transportation Resiliency, Sustainability and Economic Challenges through the Use of Innovative Materials and Construction Methods: From Research to Implementation." The Center's Mission is to support all phases of research, technology transfer, workforce development, and outreach activities of emerging technologies that can solve transportation challenges in Region 6.

ABOUT REGION 6

The combined Region 6 UTC team represents a collaborative partnership between nine major institutions and two community colleges. This partnership will combine the distinct characteristics and strengths of each institution to deliver a Center with unique capabilities to tackle regional transportation challenges.

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Dr. Husam Sadek
Dr. Chao Wang

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Dr. Chao Wang

Program at-a-Glance

Thursday, April 11, 2019

7:30am - 8:00 am	**Breakfast** *Prefunction of Aula Canaria*
8:00am - 5:00pm	**Conference Registration** *Prefunction of Aula Canaria*
8:00am - 5:00pm	**Student Poster Competition** *Prefunction of Aula Canaria*
8:00am – 9:00am	**Opening Session - Keynote Speaker: Dr. Magdy Mikhail, TxDOT** *Buena Vista Building: Aula Canaria Amphitheater*
9:00am – 10:30am	**Concurrent Technical Session 1** *Session 1A: Intelligent Transp. Systems – Durango Building: La Villita Room* *Session 1B: Pavements – Durango Building: El Paseo Room B*
10:30am - 12:00pm	**Concurrent Technical Session 2** *Session 2A: Policy & Planning – Durango Building: La Villita Room* *Session 2B: Geotechnical – Durango Building: El Paseo Room B*
12:00pm - 1:30pm	**Lunch - Guest Speaker: Dr. Hainian Wang, Chang'an University** *Durango Building: River Walk Room*
1:30pm - 3:00pm	**Concurrent Technical Session 3** *Session 3A: Structural – Durango Building: La Villita Room* *Session 3B: Asphalt Materials – Durango Building: El Paseo Room B*
3:00pm - 3:30pm	**Coffee Break and Networking** *Durango Building: River Walk Room*
3:30pm - 5:30pm	**Concurrent Technical Session 4** *Session 4A: Structural – Durango Building: La Villita Room* *Session 4B: Portland Cement Materials – Durango Building: El Paseo Room B*
6:00pm – 9:00pm	**Gala Dinner and Social Activity**

Student Poster Competition

Please join us as Tran-SET-sponsored students present on their research and participate in a poster competition. Total of 38 posters from 11 partnering institutions across five states (Arkansas, Louisiana, New Mexico, Oklahoma, and Texas) of Region 6 will be judged by a panel – and certificates for first, second, and third prize will be awarded.

Program at-a-Glance

Friday, April 12, 2019

7:30am - 8:00 am	**Breakfast** *Prefunction of Aula Canaria*
8:00am - 12:00pm	**Conference Registration** *Prefunction of Aula Canaria*
8:00am - 5:00pm	**Student Poster Competition** *Prefunction of Aula Canaria*
8:00am - 9:00am	**Keynote Speaker Presentation: Dr. Shawn Wilson, LaDOTD** *Buena Vista Building: Aula Canaria Amphitheater*
9:00am - 10:30am	**Concurrent Technical Session 5** *Session 5A: Intelligent Transp. Systems – Durango Building: La Villita Room* *Session 5B: Pavements – Durango Building: El Paseo Room B*
10:30am - 12:00pm	**Concurrent Technical Session 6** *Session 6A: Pavements – Durango Building: La Villita Room* *Session 6B: Portland Cement Materials – Durango Building: El Paseo Room B*
12:00pm - 1:30pm	**Lunch - Guest Speaker: Dr. Dallas Little,** Texas A&M University *Durango Building: River Walk Room*
1:30pm - 3:00pm	**Concurrent Technical Session 7** *Session 7A: Highway Sustainability & Safety – Durango Building: La Villita Room* *Session 7B: Structural – Durango Building: El Paseo Room B*
3:00pm - 3:30pm	**Coffee Break and Networking** *Durango Building: River Walk Room*
3:30pm - 5:30pm	**Concurrent Technical Session 8** *Session 8A: Asphalt Materials – Durango Building: La Villita Room* *Session 8B: Geotechnical – Durango Building: El Paseo Room B*
5:30pm - 6:30pm	**Conference Concludes**

Student Poster Competition

Please join us as Tran-SET-sponsored students present on their research and participate in a poster competition. Total of 38 posters from 11 partnering institutions across five states (Arkansas, Louisiana, New Mexico, Oklahoma, and Texas) of Region 6 will be judged by a panel – and certificates for first, second, and third prize will be awarded.

Technical Sessions

THURSDAY | 9:00am – 10:30am | Session 1

Session 1A: Intelligent Transportation Systems (ITS)
Moderator: Hatim Sharif
Durango Building: La Villita Room

As transportation agencies are asked to increasingly maximize the benefits of their investments on infrastructure, they are continually exploring more intelligent, cost-effective solutions. This session will investigate such solutions for a wide-range of transportation issues: mobility, safety, and energy. During this session, Tran-SET research and analysis will be presented on: (1) harvesting energy from pavements, (2) mitigating traffic congestion in Baton Rouge, LA, (3) improving traffic safety in San Antonio, TX, and (4) utilizing headlamps for wireless sensing.

Harvesting Energy from Pavement – Electromagnetic Approach
Mohammadreza Gholikhani - University of Texas at San Antonio
Seyed Amid Tahami - University of Texas at San Antonio
Samer Dessouky - University of Texas at San Antonio

Mitigating Traffic Congestion on I-10 Mississippi River Bridge in Baton Rouge, LA
Samir Ahmed - Oklahoma State University
Osama Osman - Virginia Tech Transportation Institute
Julius Codjoe - Louisiana Transportation Research Center

Urban Intersections and Traffic Safety in the City of San Antonio
Qasim Adegbite - University of Texas at San Antonio
Khondoker Billah - University of Texas at San Antonio
Hatim Sharif - University of Texas at San Antonio
Samer Dessouky - University of Texas at San Antonio

Wireless Sensing using Vehicle Headlamps for Intelligent Transportation Systems: Proof of Concept
Hisham Abuella - Oklahoma State University
Sabit Ekin - Oklahoma State University
Samir Ahmed - Oklahoma State University
Farshad Miramirkhani - Ozyegin University
Burak Kebapci - Ozyegin University
Murat Uysal - Ozyegin University

Session 1B: Pavements
Moderator: Stefan Romanoschi
Durango Building: El Paseo Room B

"Preserving the existing transportation system" is one of the four major research themes of Tran-SET. In order to adequately preserve the existing transportation system, it is vital to evaluate the current condition and to properly monitor the system. This provides the necessary data as to provide cost saving maintenance strategies. This session presents a variety of novel approaches to manage, evaluate, and enhance the structural capacity of pavements in the region.

Development of a Conceptual Model for Accelerated Project Prioritization after Disaster Event
Claudia Martins - University of New Mexico
Laleh Ghanbari - Louisiana State University
Chao Wang - Louisiana State University
Fernando Moreu - University of New Mexico

Evaluation of a Novel Road Thermoelectric Generator System
Seyed Amid Tahami - University of Texas at San Antonio
Mohammadreza Gholikhani - University of Texas at San Antonio
Reza Nasouri - University of Texas at San Antonio
Samer Dessouky - University of Texas at San Antonio

Development of Deflection Parameters to Evaluate the Structural Capacity of Flexible Pavements at the Network Level: Case Study for the State of Texas
Karthikeyan Loganathan - University of Texas at Tyler
Mayzan Isied - University of Texas at Tyler
Ana Maria Coca - University of Texas at Arlington
Mena Souliman - University of Texas at Tyler
Stefan Romanoschi - University of Texas at Arlington
Samer Dessouky - University of Texas at San Antonio

Experimental Evaluation of Engineered Cementitious Composites as Reflective Crack Control Interlayer for Composite Pavements
Mohammad Bhuyan - University of Louisiana at Lafayette
Mohammad Khattak - University of Louisiana at Lafayette
Qian Zhang - University of Louisiana at Lafayette
Emilee Schlader - Missouri University of Science and Technology

Technical Sessions

THURSDAY | 10:30am - 12:00pm | Session 2

Session 2A: Policy and Planning
Moderator: Christopher Melson
Durango Building: La Villita Room

As transportation engineering practitioners and researchers, it is important to think of the transportation system holistically when addressing issues; such as the user's perspective, equity, and interaction with the system components. This session introduces a variety of user-related issues and potential solutions in Region 6 such as: (1) workforce recruitment, retention, and promotion at transportation agencies, (2) environmentally-friendly high-speed rail systems, and (3) sustainable and high quality pedestrian infrastructures.

Recruiting, Retaining, and Promoting for Careers at Transportation Agencies
Kristal Metro - University of New Mexico
Julia Hernández - Louisiana State University
Susan Bogus - University of New Mexico
Christofer Harper - Colorado State University
Raghava Kommalapati - Prairie View A&M University
Doeun Choe - Prairie View A&M University

Lifecycle Environmental Impact of High-Speed Rail System in the Houston-Dallas I-45 Corridor
Jesuina Chipindula - Prairie View A&M University
Venkata Botlaguduru - Prairie View A&M University
Doeun Choe - Prairie View A&M University
Raghava Kommalapati - Prairie View A&M University

Sustainable and Equitable Financing for Pedestrian Infrastructure
Alexis Corning Padilla - University of New Mexico
Gregory Rowangould - University of New Mexico

Evaluating how the Quality of Pedestrian Infrastructure Affects the Choice to Walk
Alexis Corning Padilla - University of New Mexico
Gregory Rowangould - University of New Mexico

Session 2B: Geotechnical
Moderator: Anand Puppala
Durango Building: El Paseo Room B

In Region 6, many geotechnical issues are affecting its transportation infrastructure: from clay soils, marshlands, to coastal zones and extreme weather events. This session presents on a broad range of geotechnical-related topics relevant to the South-Central States: (1) investigating the performance of Geosynthetic reinforced soil-integrated bridge system under working stress condition, (2) remediation of soft soil with permeable low-density cellular concrete, (3) the use of recycled concrete aggregates in soil-geopolymer mixes for base and subbase pavement layers, and (4) introducing corrosion risk of metal culverts in Arkansas.

Evaluating the Performance of Geosynthetic Reinforced Soil-Integrated Bridge System (GRS-IBS) under Working Stress Condition
Murad Abu-Farsakh - Louisiana State University
Allam Ardah - Louisiana State University
George Voyiadjis - Louisiana State University

Soft Soil Remediation with Permeable Low-Density Cellular Concrete (PLDCC)
Nico Sutmoller - Aerix Industries
Milton Gomez - Aerix Industries
John Kevern - University of Missouri

Soil-Geopolymer Mixtures Using Recycled Concrete Aggregates for Base and Subbase Layers
Daniel Odion - University of Louisiana at Lafayette
Mohammad J Khattak - University of Louisiana at Lafayette
Makarios Abader - University of Louisiana at Lafayette
Nathan Heim - University of Alabama

An Overview of Corrosion Risk of Metal Culverts in Arkansas
Mdariful Hasan - Arkansas State University
Zahid Hossain - Arkansas State University

Technical Sessions

THURSDAY | 1:30pm – 3:00pm | Session 3

Session 3A: Structural
Moderator: Ibrahim Karaman
Durango Building: La Villita Room

This session further explores Tran-SET's research theme of Preserving the Existing Transportation System by showcasing research projects involving inspection techniques, health monitoring systems, and novel materials/techniques to improve resiliency and durability of transportation structures. Specifically, this session presents on: (1) developing a system to assist engineers in the inspection of bridges using unmanned aerial vehicles in Louisiana, (2) assessing the hydrodynamic response of coastal bridges during extreme climatic conditions, (3) developing a magnetic sensing for structural health monitoring through embedded shape memory alloy components, and (4) utilizing precast Ultra-High-Performance Fiber-Reinforced Concrete (UHP-FRC) for rapid and sustainable pavements repair.

Exploring the Potential Utility of Unmanned Aerial Vehicles for Practical Bridge Inspection in Louisiana
Paul Darby - University of Louisiana at Lafayette
William Hollerman - University of Louisiana at Lafayette
John Miller - University of Louisiana at Lafayette

Evaluating the Hydrodynamic Response of Coastal Bridges during an Extreme Weather Event
Reza Nasouri - University of Texas at San Antonio
Adnan Shahriar - University of Texas at San Antonio
Adolfo Matamoros - University of Texas at San Antonio
Arturo Montoya - University of Texas at San Antonio
Firat Testik - University of Texas at San Antonio

Structural Health Monitoring by Magnetic Sensing in Concrete Structures via Embedded Shape Memory Alloy Components
Allen Davis - Texas A&M University
Mirmilad Mirsayar - Texas A&M University
Darren Hartl - Texas A&M University

Session 3B: Asphalt Concrete Materials
Moderator: Husam Sadek
Durango Building: El Paseo Room B

One of the four major research themes of "Tran-SET is Enhancing the Durability and Service Life of Infrastructure". This session explores this theme by applying cutting-edge technologies and novel materials to asphalt concrete materials. This session presents on: (1) analyzing the fracture behavior of asphalt mixtures using Semi-Circular Bending test, (2) rheological and molecular characterization of rubberized asphalt emulsions, (3) evaluating degradation of modified asphalt dinder due to aging using a novel extensional deformation test, and (4) evaluating the effect of water and emulsifier on the mechanical properties of cement asphalt mortar.

Fracture Behavior Analysis of Semi-Circular Bending Test
David Renteria - Terracon Consultants Inc.
Shadi Saadeh - California State University
Enad Mahmoud - Pavement Analysis & Design, TxDOT – Maintenance Division

Investigating the Effect of Artificial Ageing on the Creep and Recovery of SBS-Modified Bitumen
Giacomo Cuciniello - University of Nottingham
Pietro Leandri - University of Pisa
Davide Lo Presti - University of Nottingham
Massimo Losa - University of Pisa
Gordon Airey - University of Nottingham

Evaluation of Degradation of SBS Modified Asphalt Binder Due to RTFO, PAV and UV Aging Using a Novel Extensional Deformation Test
Roksana Hossain - Louisiana Tech University
Nazimuddin M. Wasiuddin - Louisiana Tech University

Effect of Water and Emulsifier on the Mechanical Properties of Cement Asphalt Mortar
Tri Ho Minh Le - Kunsan National University
Dae-Wook Park - Kunsan National University
Jung-Woo Seo - Kunsan National University

Technical Sessions

THURSDAY | 3:00pm - 4:30pm | Session 4

Session 4A: Structural
Moderator: Fernando Moreu
Durango Building: La Villita Room

In conjunction with Session 3A, this session further explores Tran-SET's research theme of "Preserving the Existing Transportation Systems" by showcasing research projects involving several novel materials/techniques and health monitoring systems to enhance durability of transportation structures in Region 6. Specifically, this session presents on: (1) the use of large dimension

Large Dimension and Low-Cost Fe-SMA Rods
Hande Ozcan - Texas A&M University
Ji Ma - Texas A&M University
Jeremy Schaffer - Fort Wayne Metals Research Products Corporation
Ibrahim Karaman - Texas A&M University

A Multi-Hazard Probabilistic Framework for Quantifying Bridge Failure Risk Considering Climate Change
Omid Khandel - Oklahoma State University
Mohamed Soliman - Oklahoma State University

Fit-in GFRP Liner for Retrofitting Corroded Metal Culverts
Rahulreddy Chennareddy - University of New Mexico
Susan Bogus Halter - University of New Mexico
Mahmoud M. Reda Taha - University of New Mexico

Low-Cost, Battery-Powered, Efficient Wireless Intelligent Sensor (LEWIS2): Outdoors and Remote Sensing Applications
Marlon Agüero - University of New Mexico
Ali Ozdagli - University of New Mexico
Fernando Moreu - University of New Mexico

Integrated Health Monitoring of Transportation Structures with Magnetic Fe-SMA Wires
Nathan Malone - Texas A&M University
Peter Miller - Texas A&M University
Hande Ozcan - Texas A&M University
Ji Ma - Texas A&M University
Jeremy Schaffer - Fort Wayne Metals Research Products Corporation
Ibrahim Karaman - Texas A&M University

Parametric Study on the Effect of Steel Confinement in Short Bridge Piers Retrofitted with Externally-Wrapped FRP
Diogo Zignago - University of California Davis
Michele Barbato - University of California Davis

Session 4B: Portland Cement Materials
Moderator: Zahid Hossain
Durango Building: El Paseo Room B

This session further explores Tran-SET's research theme of "Enhancing the Durability and Service Life of Infrastructure". It presents the application of novel materials to increase the durability of concrete materials and concrete structures, while using locally available products/by-products; effectively constituting these high-performing materials more cost-effective and implementable. J

Cost-Effective ECC with Low Fiber Content for Pavement Application
Gabriel Arce - Louisiana State University
Hassan Noorvand - Louisiana State University
Marwa Hassan - Louisiana State University
Tyson Rupnow - Louisiana Transportation Research Center
Ricardo Hungria - Louisiana State University

Self-Healing Concrete using Micro-Encapsulated Bacteria in a Simulated Humid Subtropical Climate
Ahsennur Soysal - Louisiana State University
Jose Milla - Louisiana Transportation Research Center
Tyson Rupnow - Louisiana Transportation Research Center
Marwa Hassan - Louisiana State University

Potential Use of Rice Husk Ash (RHA) in Flowable Fill Concrete
Kazi Islam - Arkansas State University
Zahid Hossain - Arkansas State University

Influence of Production Methodology on the Pozzolanic Activity of Sugarcane Bagasse Ash
Sujata Subedi - Louisiana State University
Gabriel Arce - Louisiana State University
Marwa Hassan - Louisiana State University
Nitin Kumar - University of California
Michele Barbato - University of California
Maria Teresa Gutierrez-Wing - Louisiana State University

Use of Rice Husk Ash (RHA) as a Supplementary Cementitious Material in Producing Normal Concrete
Kazi Islam - Arkansas State University
Zahid Hossain - Arkansas State University

Technical Sessions

FRIDAY | 9:00am – 10:30am | Session 5

Session 5A: Intelligent Transportation Systems (ITS)
Moderator: Sara Ahmed
Durango Building: La Villita Room

In conjunction with Session 1A, this session will present innovative solutions for a wide-range of transportation issues: mobility, safety, and energy.

Freight Consolidation Problem with Time Windows, Pickup and Delivery Sequence
Devaraj R. Krishnan - Oklahoma State University
Tieming Liu - Oklahoma State University

Smart illuminative Charging (SiC) of Future Electric Vehicles Using Roadway Infrastructure
Daniel Fernandez - University of Texas at San Antonio
Ann Sebastian - University of Texas at San Antonio
Ethan Ahn - University of Texas at San Antonio
Mahmoud Reda Taha - University of New Mexico
Samer Dessouky - University of Texas at San Antonio
Sara Ahmed - University of Texas at San Antonio

Real-Time Analysis of City Scale Transportation Networks in New Orleans Metropolitan Area Using an Agent Based Model Approach
Millard McElwee - University of California Berkeley
Bingyu Zhao - University of Cambridge
Kenichi Soga - University of California Berkeley

Application of Virtual Reality to Investigate Driver's Route Choice in an Interstate Highways
Sanaz Saedi - Louisiana State University
Yimin Zhu - Louisiana State University
Supratik Mukhopadhyay - Louisiana State University
Ravindra Gudishala - Louisiana State University
Zhen Xu - Louisiana State University

Session 5B: Pavements
Moderator: Athanassios T. Papagiannakis
Durango Building: El Paseo Room B

In conjunction with Session 1B, this session presents a variety of structural detection, evaluation, and damage quantification methods related to pavements in Region 6, such as: (1) the use of long-term pavement performance data to quantify moisture damage under crack sealing and surface treatments in asphalt pavements, (2) automated road damage recognition based on the sparse coding analysis of vehicle vibrations, and (3) developing implementable climatic input data and moisture boundary conditions for pavement analysis and design.

Use of LTPP Data to Quantify Moisture Damage under Crack Sealing and Surface Treatments in Asphalt Pavements
Momen R. Mousa - Louisiana State University
Mostafa A. Elseifi - Louisiana State University
Mohammad Z. Bahsar - Louisiana State University

Automated Road Damage Recognition based on the Sparse Coding Analysis of Vehicle Vibrations
Jing Du - Texas A&M University
Zishuo Li - Texas A&M University
Chao Wang - Louisiana State University

Developing Implementable Climatic Input Data and Moisture Boundary Conditions for Pavement Analysis and Design
Amir Hossein Javid - Oklahoma State University
Rifat Bulut - Oklahoma State University

Technical Sessions

FRIDAY | 10:30am – 12:00pm | Session 6

Session 6A: Pavements
Moderator: Athanassios T. Papagiannakis
Durango Building: La Villita Room

In conjunction with Sessions 1B and 5B, this session investigates major issues of pavement structures in the region with proposed solutions. This session presents on: (1) evaluation of strains at the bottom of the asphalt base layer of a semi-rigid pavement under a class 6 vehicle, (2) development of a solar prototype for roadway, and (3) guidelines for identification of top-down cracks in in-service flexible pavements.

Evaluation of Strains at the Bottom of the Asphalt Base Layer of a Semi-Rigid Pavement Under a Class 6 Vehicle
Mohsen Talebsafa - University of Texas at Arlington
Stefan A. Romanoschi - University of Texas at Arlington
Athanassios T. Papagiannakis - University of Texas at San Antonio
Constantin Popescu - University of Texas at Arlington

Development of a Solar Prototype for Roadway
Md Fahim Tanvir Hossain - University of Texas at San Antonio
Samer Dessouky - University of Texas at San Antonio

Guidelines for Identification of Top-down Cracks (TDC) in In-Service Flexible Pavements
Nirmal Dhakal - Louisiana State University
Mohammad Bashar - Louisiana State University
Mostafa Elseifi - Louisiana State University

Session 6B: Portland Cement Materials
Moderator: Gabriel Arce
Durango Building: El Paseo Room B

In conjunction with Session 4B, this session further explores Tran-SET's research theme of Enhancing the Durability and Service Life of Infrastructure. It investigates the application of novel materials to increase the durability of concrete materials and concrete structures, while using locally available products/by-products; effectively constituting these high-performing materials more cost-effective and implementable.

Ultra-High-Performance Concrete Shear Keys in Concrete Bridge Superstructures
Elsy Y. Flores - New Mexico State University
Jordan Varbel - New Mexico State University
Craig M. Newtson - New Mexico State University
Brad D. Weldon - New Mexico State University

Shrinkage in Ultra-High Performance Concrete Overlays on Concrete Bridge Decks
William Toledo - New Mexico State University
Leticia Davila - New Mexico State University
Ahmed Al-Basha - New Mexico State University
Craig Newtson - New Mexico State University
Brad Weldon - New Mexico State University

Preparation and Electrochemical Characterization of Concrete Containing Microencapsulated Calcium Nitrate Corrosion Inhibitor
Changkyu Kim - Texas A&M University
Reece Goldsberry - Texas A&M University
Ahmad Ivan Karayan - Texas A&M University
Jose Milla - Louisiana Department of Transportation and Development
Marwa Hassan - Louisiana State University
Homero Castaneda - Texas A&M University

Workforce Development for Ultra-High Performance Concrete
Grace McMurry - New Mexico State University
Brad Weldon - New Mexico State University
Craig Newtson - New Mexico State University

Technical Sessions

FRIDAY | 1:30pm – 3:00pm | Session 7

Session 7A: Highways Sustainability & Safety
Moderator: Chao Wang
Durango Building: La Villita Room

This session explores Tran-SET's research theme of "Preserving the Existing Transportation Systems" by showcasing research projects involving inspection techniques, health monitoring systems, and novel materials/techniques to improve resiliency and durability of transportation infrastructure. Specifically, this session presents on: (1) carbon sequestration of soil and plants along IH-35 in Bexar County, Texas, (2) application of a disaggregation method for the generation of climate changed intensity-duration-frequency curves for predicting future extreme rainfall impacts on transportation infrastructure in Region 6, (3) discussing fatalities at low-water crossings in Texas, and (4) police traffic services enforcement and education campaign to reduce intersection crashes.

Carbon Sequestration of Soil and Plants along IH-35 in Bexar County, Texas
Lauren Rangel - University of Texas at San Antonio
Vikram Kapoor - University of Texas at San Antonio
Jeffrey Hutchinson - University of Texas at San Antonio
Samer Dessouky - University of Texas at San Antonio

Application of a Disaggregation Method for the Generation of Climate Changed Intensity-Duration-Frequency Curves for Predicting Future Extreme Rainfall Impacts on Transportation Infrastructure
Cesar Do Lago - University of Texas at San Antonio
Eduardo Mendiondo - University of Sao Paulo
Francisco Olivera - Texas A&M University
Marcio Giacomoni - University of Sao Paulo

Fatalities at Low-water Crossings in Texas
Hatim Sharif - University of Texas at San Antonio
Samer Dessouky - University of Texas at San Antonio

Police Traffic Services Enforcement and Education Campaign to Reduce Intersection Crashes
Greg Reininger - City of San Antonio TCI
Bianca Thrope - City of San Antonio TCI
Jillian Harris - City of San Antonio TCI
Art Reinhardt - City of San Antonio TCI
Samer Dessouky - University of Texas at San Antonio
Hatim Sharif - University of Texas at San Antonio
Brent Smith - San Antonio Police Department
Leslie Komet - Komet Communications

Session 7B: Structural
Moderator: Miladin Radovic
Durango Building: El Paseo Room B

In conjunction with Session 3A and 4A, this session further explores Tran-SET's research theme of Preserving the Existing Transportation System by showcasing research projects involving several novel materials/techniques and health monitoring systems to enhance durability of transportation structures in Region 6.

Life-Cycle Cost Analysis of Reinforced Concrete Bridge Decks with Conventional and Corrosion Resistant Reinforcement
Ligang Shen - Oklahoma State University
Mohamed Soliman - Oklahoma State University
Samir Ahmed - Oklahoma State University
Christopher Waite - Oklahoma State University

Infrastructure Stakeholders' Perspective in Development and Implementation of New Structural Health Monitoring (SHM) Technologies for Maintenance and Management of Transportation Infrastructure
Dilendra Maharjan - University of New Mexico
Maron Agüero - University of New Mexico
Chris Lippitt - University of New Mexico
Fernando Moreu - University of New Mexico

Control of Thermal Deflection in Concrete Structures Using Iron-Based Shape Memory Alloys
Brady Edmiston - Texas A&M University
Allen Davis - Texas A&M University
Mirmilad Mirsayar - Texas A&M University
Darren Hart - Texas A&M University

Precast Ultra-High-Performance Fiber-Reinforced Concrete (UHP-FRC) for Fast and Sustainable Pavement Repair
Ashish Karmacharya - University of Texas at Arlington
Shih-Ho Chao - University of Texas at Arlington

Technical Sessions

FRIDAY | 3:30pm – 5:30pm | Session 8

Session 8A: Asphalt Concrete Materials
Moderator: Husam Sadek
Durango Building: La Villita Room

In conjunction with Session 3B, this session explores one of the four major research themes of Tran-SET, "Enhancing the Durability and Service Life of Infrastructure" by applying cutting-edge technologies and novel materials to asphalt materials.

Evaluation of Selected Performance Properties of Nanoclay-Modified Asphalt Binders
Mohammad N. Hassan - Arkansas State University
M M Tariq Morshed - Arkansas State University
Zahid Hossain - Arkansas State University

Laboratory Testing of Self-Healing Polymer Modified Asphalt Mixtures Containing Recycled Asphalt Materials (RAP/RAS)
Sharareh Shirzad - Louisiana State University
Marwa M. Hassan - Louisiana State University
Max A. Aguirre - Louisiana State University
Samuel Cooper Jr. - Louisiana Transportation Research Center
Louay N. Mohammad - Louisiana State University
Ioan I. Negulescu - Louisiana State University

Performance Characteristics of Asphalt Binders containing Sodium-Alginate Hollow Fibers and Recycled Materials
Max A. Aguirre - Louisiana State University
Marwa M. Hassan - Louisiana State University
Sharareh Shirzad - Louisiana State University
Louay N. Mohammad - Louisiana State University
Samuel Cooper Jr. - Louisiana Transportation Research Center
Ioan I. Negulescu - Louisiana State University

Nanoscale Quantification of Moisture Susceptibility of Paving Asphalts
Sumon Roy - Arkansas State University
Zahid Hossain - Arkansas State University

What are the Alternatives of PG Plus Tests for Modified Asphalt Binders?
M M Tariq Morshed - Arkansas State University
Mohammad Nazmul Hassan - Arkansas State University
Zahid Hossain - Arkansas State University

Rheological and Molecular Characterization of Rubberized Asphalt Emulsions
Md. Nafiur Rahman - Louisiana State University
Md. Tanvir Sarkar - Louisiana State University
Mostafa Elseifi - Louisiana State University

Session 8B: Geotechnical
Moderator: Miladin Radovic
Durango Building: El Paseo Room B

In conjunction with Session 2B, this session presents the many and wide-ranging geotechnical issues facing transportation infrastructure in Region 6: from clay soils, marshlands, to coastal zones and extreme weather events.

Karst Sinkhole Detecting and Mapping Using Airborne LiDAR – A Conceptual Framework
Su Zhang - University of New Mexico
Susan Bogus - University of New Mexico
Shirley Baros - University of New Mexico
Paul Neville - University of New Mexico
Ryan Dow - University of New Mexico

Effect of Lateral Cyclic loading on Drilled Shaft within an MSE Wall
Jie Huang - University of Texas at San Antonio
Saidur Rahman - KMA Consulting Engineers, Inc.
Sazzad Bin-Shafique - University of Texas at San Antonio
Chao Zheng - University of Texas at San Antonio
Sandeep Malla - University of Texas at San Antonio

Predicting the Performance of Highway Embankment Slopes
Navid H. Jafari - Louisiana State University
Anand Puppala - University of Texas at Arlington
Burak Boluk - University of Texas at Arlington
Jack A. Cadigan - Louisiana State University
Sayantan Chakraborty - University of Texas at Arlington
Tejo Bheemasetti - South Dakota School of Mines & Technology
Jordan E. Pleasant - Louisiana State University

Development of Alternative Stabilization Methods for Transportation Infrastructure Based on Geopolymers
Oscar D. Huang - Texas A&M University
Rinu Samuel - University of Texas at Arlington
Aritra Banerjee - University of Texas at Arlington
Anand J. Puppala - University of Texas at Arlington
Miladin Radovic - Texas A&M University

Development of Field-Friendly Mechanical Characterization Methods for Compacted Unbound Aggregates
Douglas D. Cortes - New Mexico State University
Paola Bandini - New Mexico State University

Integrated Full-Scale Physical Experiments and Numerical Modeling of the Performance and Rehabilitation of Highway Embankments
Sayantan Chakraborty - University of Texas at Arlington
Murad Nazari - Louisiana State University
Burak Boluk - University of Texas at Arlington
Jordan Pleasant - Louisiana State University
Navid Jafari - Louisiana State University
Anand Puppala - University of Texas at Arlington

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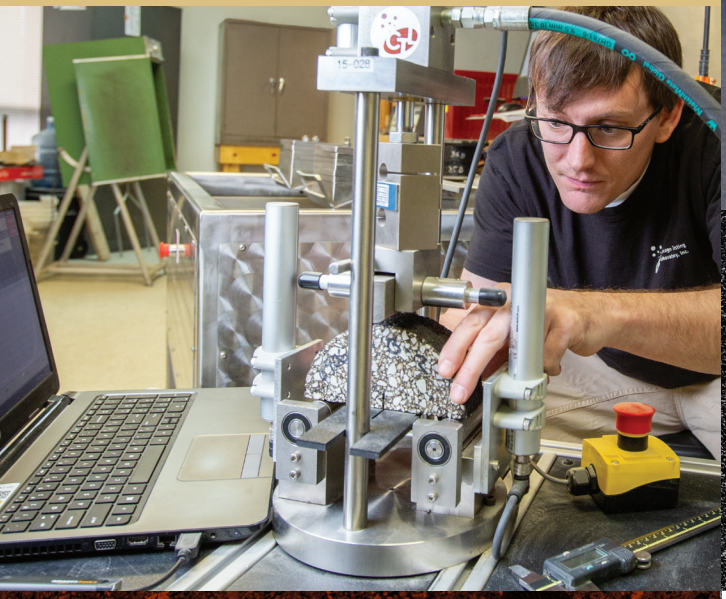

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