2021 Tran-SET Conference

June 3-4, 2021 | e-Hosted by

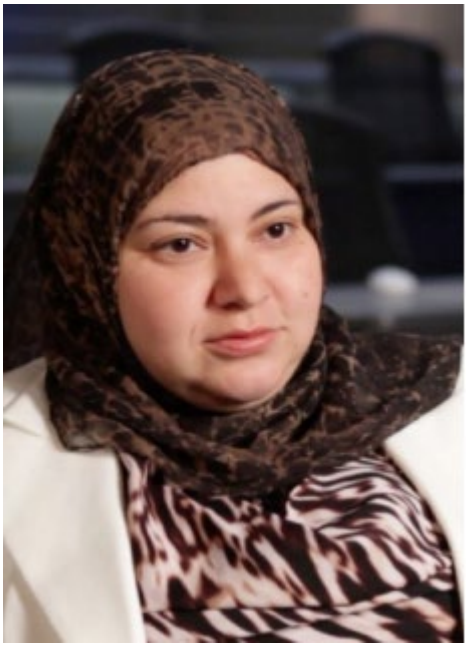
Arkansas State University (A-State)

Jonesboro, Arkansas

Welcome

Welcome to the 2021 Tran-SET Conference!

On behalf of the Transportation Consortium of South-Central States (Tran-SET), I am honored to welcome you to the 2021 Tran-SET Conference, virtually hosted by Arkansas State University.



Tran-SET is a regional University Transportation Center (UTC) comprising of 11 partnering institutions across five states (Arkansas, Louisiana, New Mexico, Oklahoma, and Texas) in Federal Highway Administration (FHWA) Region 6, aiming to address the accelerated deterioration of our transportation infrastructure through the development, evaluation, and implementation of cutting-edge technologies, novel materials, and innovative 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 2021 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, the Student Poster sessions comprising of several student posters from different institutions in the region are being showcased at the 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 state jurisdiction.

We hope you have a productive meeting and enjoy all that the conference 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

Welcome Message from the Chair of the 2021 Tran-SET Conference

On behalf of the organizing committee, I warmly welcome you to the 2021 Transportation Consortium of South-Central States (Tran-SET) Conference, virtually hosted by Arkansas State University (A-State).

This is the 4th annual conference of the Tran-SET. The theme of this conference is developing, evaluating, and implementing cutting-edge technologies, novel materials, and innovative construction management processes to enhance the durability and service of transportation infrastructure. The purpose of this Conference is to educate, engage, and work with varied stakeholders (academics, industry professionals, state DOTs, and other government agencies) to solve transportation challenges facing the South-Central United States. The Conference is an opportunity to inform stakeholders on Tran-SET's research, education, workforce development, and technology transfer activities. This includes showcasing our technical contributions in a wide range of transportation fields including pavements, asphalt and concrete materials, structures, geotechnical, safety, intelligent transportation systems, and policy and planning.

There have been 61 submissions (45 full papers for presentation and publication, and 16 abstracts for student poster presentation) at this conference. Topics covered in these submissions include but not limited to novel materials to enhance durability of Portland cement materials, advanced and renewable materials to improve performance of asphalt mixtures, implementation of innovative construction management processes, environmentally-friendly soil stabilization techniques, effective and simplified approaches to evaluate pavements performance, cost-effective monitoring and preserving of structures, development of safety assessment approaches for infrastructure, and impact of intelligent transportation systems (ITS) on economic development. The submitted papers have gone through a peer-review process before recommending for acceptance. We expect a few hundred participants across the globe to attend this conference. Please enjoy the technical sessions, poster presentations, and other conference events!

To put a conference of this magnitude together is not a small task. To this end, I sincerely appreciate all members of the conference steering and scientific committees, speakers and presenters, authors and reviewers, participants, A-State staff and administrators, student volunteers, the Tran-SET family, USDOT, and sponsors for their efforts and contributions in making this event successful. Please do not hesitate to contact me via email at mhossain@astate.edu or transet2021@astate.edu, if I can help you with anything.

Sincerely,

Zahid Hossain, Ph.D., P.E.
Chair, 2021 Tran-SET Conference
Associate Director of Tran-SET
Co-Director and Associate Professor of Civil Engineering
Arkansas State University

Keynote Speaker

Dr. Robert Hampshire, Acting Assistant Secretary for Research and Technology, and Chief Science Officer

United States Department of Transportation

Robert Hampshire serves as the Acting Assistant Secretary for Research and Technology, and Chief Science Officer. Hampshire was previously an associate professor at the Gerald R. Ford School of Public Policy at the University of Michigan. He was also a research associate professor in both the U-M Transportation Research Institute (UMTRI) and Michigan Institute for Data Science (MIDAS), and an affiliated faculty member in the Department of Industrial and Operations Engineering (IOE).

His unique blend of engineering systems research with public policy has made him a leader in not only transportation research, but also on the disparate impact of policy decisions in transportation systems. This has led to important strides in our understanding of transportation equity. His research applies operations research, data science, and systems approaches to analyze novel transportation systems such as smart parking, connected vehicles, autonomous vehicles, ride-hailing, bike sharing, car sharing, as well as, pedestrian and bicyclist safety. His research focuses on environmental impacts, equity, and access to opportunities. His work has been cited widely, and covered by major press outlets. He has worked extensively with both public and private sector partners worldwide. He has also been a faculty member at Carnegie Mellon University and a visiting professor at the Massachusetts Institute of Technology. Hampshire received a Ph.D. in operations research and financial engineering from Princeton University.

Keynote Speaker

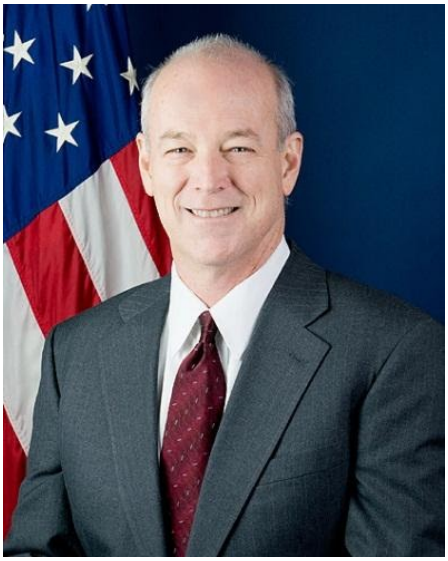
Lorie Tudor, Director

Arkansas Department of Transportation (ARDOT)

Lorie Tudor was selected by the Arkansas Highway Commission to become Director of the ARDOT effective March 20, 2020. Tudor has over 36 years of service with ARDOT. Most of that time has been in the Planning Branch. She began her career with the Department in 1981 as a Clerk Typist working in several areas, including the Fiscal Services Division and the Programs & Contracts Division. She resigned in 1995 to return to school to study Civil Engineering. She graduated in 1997 from the University of Memphis with a Bachelor of Science in Civil Engineering Degree. Tudor returned to the Department in 1998 as a Civil Engineer I in the Planning and Research Division. She held various titles in the planning, research, and program management areas, including Assistant Division Head and Division Head of Programs & Contracts before becoming Assistant Chief Engineer for Planning in 2011. In December 2014, she was named the Deputy Director and Chief Operating Officer for ARDOT. This position is accountable for overseeing all operational activities of the Department. Tudor is an active member of the American Association of State Highway and Transportation Officials (AASHTO) and currently serves as Chairman of the Committee on Funding and Finance. She received AASHTO's *Alfred E. Johnson Achievement Award* recognizing a department of transportation official who has made outstanding contributions and provided exceptional service in either engineering or management. The University of Arkansas inducted Tudor into its *Academy of Civil Engineering* where she became the first ARDOT female engineer to achieve this distinction in the Academy's nearly 40-year history. Tudor is a Registered Professional Engineer in Arkansas.

Keynote Speaker

Kenneth M, Leonard, Director
Intelligence Transportation Systems Joint Program Office
United States Department of Transportation



Ken Leonard has over 30 years' leadership experience in research, development and deployment of advanced technologies. His work to mature and develop technologies in energy; combat systems; strategic defense; aviation communications, navigation and surveillance; weather and surface transportation has guided technology systems from the laboratory to operational use. He is the Director of Intelligent Transportation Systems at the United States Department of Transportation where he works to advance a portfolio of programs designed to transform the way society moves. These include connected and automated vehicles, smart cities, accessible transportation, artificial intelligence, cybersecurity and other cutting-edge transportation systems designed to increase the safety and productivity of the nation's transportation system.

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.

Tran-SET Team

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Dr. Marwa Hassan

KEY PERSONNEL
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Dr. Momen Mousa
Dr. Chao Wang

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Program at-a-Glance

Please see below for the Summary Schedule of the conference. The Conference includes several oral presentations and student posters. All times mentioned here are the **United States Central Daylight Time (CDT)**, which is the **Coordinated Universal Time (UTC) − 05:00** in June 2021.

Thursday | June 3, 2021

8:00am – 8:30am	**Welcome Remarks** *Conference Chair, Dr. Zahid Hossain* *Chancellor of A-State, Dr. Kelly Damphousse* *Provost & Exec. VC for Academic Affairs & Research, A-State, Dr. Alan Utter* *Dean of CoECS at A-State Dr. Abhijit Bhattacharyya* *VP for Research & Technology Transfer at A-State, Dr. Tom Risch*
8:00am – 5:30pm	**Student Research Poster Display (Virtual)**
8:30am – 9:00am	**Keynote Speech by USDOT Acting Assistant Secretary for Research and Technology, Dr. Robert Hampshire**
9:00am – 10:00am	**Keynote Speech by ARDOT Director, Ms. Lorie Tudor**
10:00am – 10:30am	**Short Break and Networking**
10:30am – 12:00pm	**Concurrent Technical Session 1A** *ITS, Sustainability & Safety* **Concurrent Technical Session 1B** *Pavements*
12:00pm – 1:00pm	**Lunch & Learn: Virtual Tour of College of Eng. & Comp. Sci. (12:15 -12:45 pm)**
1:00pm – 2:30pm	**Concurrent Technical Session 2A** *Highway Monitoring, Service Life, Policy & Planning* **Concurrent Technical Session 2B** *Concrete Pavements & Materials*
2:30pm – 3:00pm	**Short Break and Networking**
3:00pm – 4:30pm	**Concurrent Technical Session 3A** *Geotechnical* **Concurrent Technical Session 3B** *Concrete Pavements & Materials*
4:30pm – 5:30pm	**Concurrent Student Poster Session 1** **Concurrent Student Poster Session 2**

Program at-a-Glance

Friday | June 4, 2021

8:00am – 9:00am	**Keynote Speech by USDOT OST-R ITS Director, Mr. Kenneth Leonard**
8:00am – 5:00pm	**Student Research Poster Display (Virtual)**
9:00am – 10:30am	**Concurrent Technical Session 4A** *ITS, Sustainability & Safety*
	Concurrent Technical Session 4B *Asphalt Pavements & Materials*
10:30am – 12:00pm	**Concurrent Technical Session 5A** *Structures*
	Concurrent Technical Session 5B *Admixture, Recycling & Composites*
12:00pm – 1:00pm	**Lunch Break**
1:00pm – 2:00pm	**Technical Session 6A** *ITS, Sustainability & Safety*
2:00pm – 2:30pm	**Concluding Remarks** *Poster Awards* *Tran-SET Director, Dr. Marwa Hassan* *Conference Chair, Dr. Zahid Hossain*
2:30pm – 6:30pm	**Center Advisory Board (CAB) Meeting (Invitation Only)**

STUDENT POSTER COMPETITION

Please join us as students virtually present their research and participate in a poster competition on **Thursday, June 3rd from 4:30-5:30 pm (CDT)**. There are 16 posters in the contest, and they are from several institutions across the country. These posters will be judged virtually by a panel and prizes along with certificates will be awarded for first, second, and third place. The fourth and fifth places will receive certificates.

Technical Sessions

THURSDAY | 10:30am – 12:00pm | Session 1

Session 1A: Intelligent Transportation Systems (ITS), Sustainability & Safety
Moderators: Shubhalaxmi Kher, Hany Hassan

As transportation agencies are asked to increasingly maximize the benefits of their investments in infra-structure, 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, research and analysis will be presented on: (1) autonomous communication strategies modeling in virtual reality, (2) machine learning methodology to classify surface properties, (3) analyzing older drivers' crash severity in Louisiana, and (4) causes of the mental health challenges in construction workers.

Autonomous Vehicle Communication Strategies Modeled in Virtual Reality: Perceptions and Behaviors of Pedestrians and Human Drivers in Relation to External Human-Machine Interfaces
Nicholas Ferenchak - University of New Mexico
Sheheryar Shafique - University of New Mexico

Machine learning methodology to classify surface properties to assess rock stability in the field
Roya Nasimi - University of New Mexico
Fernando Moreu - University of New Mexico
John Stormont - University of New Mexico
Amir Bagherieh - University of New Mexico

Analyzing older drivers' crash severity in Louisiana
Saba Doulabi - Louisiana State University
Hany Hassan - Louisiana State University

Causes of the Mental Health Challenges in Construction Workers and their Impact on Labor Productivity
Behzad Rouhanizadeh - Univ. of Texas, Arlington
Sharareh Kermanshachi - Univ. of Texas, Arlington

Session 1B: Pavements
Moderators: Samer Dessouky, Alan Meadors

"Preserving the existing transportation system" is one of the four major research themes of Tran-SET. 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 to provide cost-saving maintenance strategies. This session presents the following topics: (1) comparison of predicted versus actual performance of the Arkansas SPS-2 test site, (2) findings from the national experiment of jointed concrete pavement performance, (3) effects of substrate texture and moisture conditions on overlay bond strength, (4) performance evaluation of jointed concrete pavements on Mississippi highways.

Comparison of Predicted Versus Actual Performance of the Arkansas SPS-2 Test Site
Alan Meadors – American Concrete Pavement Association, OK/AR Chapter

Findings From the National Experiment of Jointed Concrete Pavement Performance
Timin Punnackal - Nichols Consulting Engineers
Debaroti Ghosh - Nichols Consulting Engineers
Alan Meadors - American Concrete Pavement Association, OK/AR Chapter

Effects of Substrate Texture and Moisture Conditions on Overlay Bond Strength
William Toledo - New Mexico State University
Andres Alvarez - New Mexico State University
Craig Newtson - New Mexico State University
Brad Weldon - Notre Dame University

Performance Evaluation of Jointed Concrete Pavements on Mississippi Highways via Artificial Neural Network
Hakan Yasarer - University of Mississippi
William Andrews - University of Mississippi

Technical Sessions

THURSDAY | 1:00pm – 2:30pm | Session 2

Session 2A: Highway Monitoring, Service Life, Policy & Planning
Moderators: Alexandr Sokolov, Momen Mousa

This session focuses on highway monitoring, service life, policy, and planning toward achieving longer-lasting pavements with more economical benefits. This session includes four papers that deal with: (1) environmental impacts of public transportation fleet replaced with electric buses in Houston, (2) service life estimation of thermoplastic pavement markings, (3) developing an automated smart pavement monitoring tool, and (4) evaluating New Orleans and Baton Rouge rail terminals and transit links.

Environmental Impacts of Public Transportation Fleet Replaced with Electric Buses in Houston Evaluated by Life Cycle Assessment
Hongbo Du - Prairie View A&M University
Raghava Kommalapati - Prairie View A&M University

Service Life Assessment of Thermoplastic Pavement Markings in Region 6
Elise Mansour - Louisiana State University
Ibrahim Elnaml - Louisiana State University
Momen Mousa - Louisiana State University
Marwa Hassan - Louisiana State University
Omar Omar - Louisiana State University

Developing an Automated Smart Pavement Monitoring Tool
Hamed Majidifard - Univ. of Missouri-Columbia
Yaw Adu-Gyamfib - Univ. of Missouri-Columbia
William Buttlar - University of Missouri-Columbia

Rails to Resilience: Evaluating New Orleans and Baton Rouge Rail Terminals and Transit Links
Tara Tolford - University of New Orleans
Guang Tian - University of New Orleans
Alahna Moore - University of New Orleans

Session 2B: Concrete Pavements & Materials
Moderators: Ashraf Elsayed, Cameron Murray

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. Join us to learn more about: (1) influence of powdered activated carbon in fly ash on alkali-silica reactivity and scaling resistance of concrete, (2) CSCSBC layer coefficient recommendations for ARDOT pavement design, (3) preparation and evaluation of self-healing concrete using bacteria immobilized in chitin nanofibers, and (4) effect of powder activated carbon on Class C fly ash modified fresh concrete properties.

Influence of Powdered Activated Carbon (PAC) in Fly Ash on Alkali-Silica Reactivity and Scaling Resistance of Concrete
Raiyan Chowdhury - Arkansas State University
Zahid Hossain - Arkansas State University
Alan Meadors - American Concrete Pavement Assoc.

CSCSBC Layer Coefficient Recommendations for ARDOT Pavement Design
Andrew Deschenes - Tatum-Smith-Welcher Engineers, Inc.
Cameron Murray - University of Arkansas

Preparation and Evaluation of Self-Healing Concrete Using Bacteria Immobilized in Chitin Nanofibers
Andrea Gavilanes - Louisiana State University
Momen Mousa - Louisiana State University
Marwa Hassan - Louisiana State University
Ricardo Hungria - Louisiana State University
Omar Omar - Louisiana State University
Gabriel Arce - Louisiana State University
Qinglin Wu - Louisiana State University

Effect of Powder Activated Carbon on Class C Fly Ash Modified Fresh Concrete Properties
Sumon Roy - Arkansas State University
Zahid Hossain - Arkansas State University

Technical Sessions

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

Session 3A: Geotechnical
Moderators: Ashraf Elsayed, Surya Congress

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 a broad range of geotechnical-related topics relevant to the South-Central States: (1) eco-friendly stabilization of sulfate-rich expansive soils using geopolymers, (2) estimation of seismic site factors for selected locations in northeast Arkansas, (3) estimation of subgrade modulus using falling weight deflectometer, and (4) laboratory and field investigation of subgrade soil stabilization in Arkansas

Eco-Friendly Stabilization of Sulfate-Rich Expansive Soils using Geopolymers for Transportation Infrastructure
Jungyeon Jang - Texas A&M University
Anand J. Puppala - Texas A&M University
Sayantan Chakraborty - Birla Institute of Technology and Science
Nripojyoti Biswas - Texas A&M University
Oscar Huang - Texas A&M University
Miladin Radovic - Texas A&M University

Estimation of Seismic Site Factors for Selected Locations in Northeast Arkansas
Md Rafiue Islam - Arkansas State University
Zahid Hossain - Arkansas State University

Estimation of Subgrade Modulus using Falling Weight Deflectometer
Kazi Moinul Islam - University of South Carolina
Sarah Gassman - University of South Carolina

Laboratory and Field Investigation of Subgrade Soil Stabilization in Arkansas
Mdariful Hasan - Univ. of Tennessee, Knoxville
Zahid Hossain - Arkansas State University
Ashraf Elsayed - Arkansas State University

Session 3B: Concrete Pavements & Materials
Moderators: Gabriel Arce, Maryam Hojati

This session also 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. This session presents findings of the following four research topics: (1) effect of using magnesium acetate on the self-healing efficiency of hydrogel-encapsulated bacteria in concrete, (2) evaluation of alternative sources of SCMs for concrete materials, (3) evaluation of cementitious matrices for the development of ultra-high performance engineered cementitious composites, and (4) a preliminary study on the mix design of 3D-printable engineered cementitious composite.

Effect of Using Magnesium Acetate on the Self-Healing Efficiency of Hydrogel-Encapsulated Bacteria in Concrete
Ricardo Hungria - Louisiana State University
Momen Mousa - Louisiana State University
Marwa Hassan - Louisiana State University
Omar Omar - Louisiana State University
Andrea Gavilanes - Louisiana State University
Gabriel Arce - Louisiana State University
Jose Milla - Louisiana State University
Gary King - Louisiana State University

Evaluation of Alternative Sources of SCMs for Concrete Materials
Sujata Subedi - Louisiana State University
Oscar Huang - Texas A&M University
Gabriel Arce - Louisiana State University
Nathaniel Lies - Texas A&M University
Miladin Radovic - Texas A&M University
Marwa Hassan - Louisiana State University
Zahid Hossain - Arkansas State University

Evaluation of Cementitious Matrices for the Development of Ultra-High Performance Engineered Cementitious Composites
Daniel Game - Louisiana State University
Hassan Noorvand - Louisiana State University
Gabriel Arce - Louisiana State University
Marwa Hassan - Louisiana State University

A Preliminary Study on the Mix Design of 3D-Printable Engineered Cementitious Composite
Amir Bakhshi - University of New Mexico
Reza Sedghi - University of New Mexico
Maryam Hojati - University of New Mexico

Student Poster Session 1

THURSDAY | 4:30pm – 5:30pm

Moderator: Shubhalaxmi Kher

Poster ID	Poster Title	Student Name	Student Affiliation
1	Examining Traffic Operation, Safety, and Environmental Impacts of Truck Platooning on Highways	Md A Rahim	Louisiana State University
2	Evaluating the Current Enforcement System for Bridge Load Posting	Md A Rahim	Louisiana State University
3	Machine Learning-based Prediction Models for Performance of Asphalt Mixtures	Hamed Majidifard	University of Missouri-Columbia
4	Site Specific Ground Motion Response Analysis (SSGMRA) In Perspective View of North-East Arkansas (NEA)	Md Rafiue Islam	Arkansas State University
7	Ultra-High Performance Concrete for Bridge Deck Overlays	Gregory J. Gonzales	New Mexico State University
10	Preventing Struck-by Hazards: Defying Risk-habituation via Virtual Accident Simulation	Namgyun Kim	Texas A& M University
14	Evaluation of an Organic Green Corrosion Inhibitor in Synthetic Concrete Pore Solution to Protect Steel Rebars	Loreto J. Pamatmat Dacio	University of Texas at San Antonio
15	Refining Particle Size Specification For Asphalt Emulsion	Pedro Luis Diaz Romero	University of Arkansas

Student Poster Session 2

THURSDAY | 4:30pm – 5:30pm

Moderator: Tareq Ragab

Poster ID	Poster Title	Student Name	Student Affiliation
5	Impact of Powdered Activated Carbon (PAC) in Fly Ash on Alkali-Silica Reactivity and Scaling Resistance of Concrete	Raiyan Chowdhury	Arkansas State University
6	Laboratory Evaluation of Viscosity-Temperature Susceptibility of Warm Mix Additives Modified Asphalt Binders	Mohammad N. S. Oyan	Arkansas State University
8	Natural Pozzolan Mitigation of Alkali-Silica Reaction	Judit Garcia	New Mexico State University
9	Aggregate-Binder Compatibility	David L. Murphy	University of Arkansas
11	Influence of Powder Activated Carbon (PAC) on Class C Fly Ash Modified Fresh Concrete Properties	Sumon Roy	Arkansas State University
12	Laboratory Investigation for Selecting Durable Mineral Aggregates for Paving Asphalt Mixture	Tandra Bagchi	Arkansas State University
13	Preparation and Evaluation of Self-Healing Concrete Using Bacteria Immobilized in Chitin Nanofibers	Andrea Gavilanes	Louisiana State University
16	Effect of Using Magnesium Acetate on the Self-Healing Efficiency of Hydrogel-Encapsulated Bacteria in Concrete	Ricardo Hungria	Louisiana State University

Technical Sessions

FRIDAY | 9:00am – 10:30am | Session 4

Session 4A: Intelligent Transportation Systems (ITS), Sustainability & Safety

Moderators: Rajesh Sharma, Sharareh Kermanshachi

In conjunction with Session 1A, this session will present innovative 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) bridge deck condition data collection using small unmanned aircraft system, (2) examining traffic operation, safety, and environmental impacts of truck platooning on highways, (3) short- and long-term health challenges of transportation workforce due to extreme weather conditions, and (4) prediction of electric vehicles charging load using long short-term memory model.

Bridge Deck Condition Data Collection Using Small Unmanned Aircraft System (S-UAS)
Su Zhang - University of New Mexico
Susan Bogus - University of New Mexico
Shirley Baros - University of New Mexico
Paul Neville - University of New Mexico
Hays Barrett - University of New Mexico

Examining Traffic Operation, Safety, and Environmental Impacts of Truck Platooning on Highways
Md Adilur Rahim - Louisiana State University
Hany Hassan - Louisiana State University

Short- and Long-Term Health Challenges of Transportation Workforce due to Extreme Weather Conditions
Sanjgna Karthick - University of Texas at Arlington
Sharareh Kermanshachi – Univ. of Texas, Arlington
Behzad Rouhanizadeh - Univ. of Texas at Arlington
Mostafa Namian - University of Texas at Arlington

Prediction of Electric Vehicles Charging Load Using Long Short-Term Memory Model
Eugenia Cadete – Univ. of Texas at San Antonio
Caiwen Ding - University of Connecticut
Mimi Xie - University of Texas at San Antonio
Sara Ahmed - University of Texas at San Antonio
Yu-Fang Jin - University of Texas at San Antonio

Session 4B: Asphalts, Pavements & Materials

Moderators: Nazimuddin Wasiuddin, Andrew Braham

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) assessing pavement surface deflections in the south-central states with software simulations, (2) laboratory screening of durable aggregates for paving asphalt mixture, (3) performance assessment of ultra-thin asphalt treatments in Louisiana, (4) feasibility study of warm mix asphalt in Arkansas.

Assessing Pavement Surface Deflections in the South-Central States with Software Simulations
Nitish Bastola - University of Texas at Tyler
Mena Souliman - University of Texas at Tyler
Samer Dessouky – Univ. of Texas at San Antonio

Laboratory Screening of Durable Aggregates for Paving Asphalt Mixture
Tandra Bagchi - Arkansas State University
Zahid Hossain - Arkansas State University

Performance Assessment of Ultra-Thin Asphalt Treatments in Louisiana
Daniel Game - Louisiana State University
Momen Mousa - Louisiana State University
Marwa Hassan - Louisiana State University

Feasibility Study of Warm Mix Asphalt in Arkansas
Mohammad N. S. Oyan - Arkansas State University
Zahid Hossain - Arkansas State University

Technical Sessions

FRIDAY | 10:30am – 12:00pm | Session 5

Session 5A: Structures
Moderators: Mahmoud Reda Taha, Tarek Ragab

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 the durability of transportation structures in Region 6. Specifically, this session presents the following research topics: (1) bridge construction monitoring using LiDAR data, (2) explicit finite element analysis of coastal bridges under extreme hurricane waves, (3) framework for identifying bridge parameters affecting bridge load posting, and (4) design of GFRP slip liner for retrofitting corroded metal culverts.

Bridge Construction Monitoring using LiDAR Data
Xinxing Yuan - University of New Mexico
Fernando Moreu - University of New Mexico
Christopher Lippitt - University of New Mexico

Explicit Finite Element Analysis of Coastal Bridges Under Extreme Hurricane Waves
Arsalan Majlesi – Univ. of Texas at San Antonio
Reza Nasouri - University of Texas at San Antonio
Adnan Shahriar – Univ. of Texas at San Antonio
David Amori - University of Texas at San Antonio
Arturo Montoya – Univ. of Texas at San Antonio
Ao Du - University of Texas at San Antonio
Adolfo Matamoros – Univ. of Texas at San Antonio

Framework for Identifying Bridge Parameters Affecting Bridge Load Posting
Sabarethinam Kameshwar - Louisiana State Univ.
Sai Bandaru - Louisiana State University

Design of GFRP Slip Liner for Retrofitting Corroded Metal Culverts
Mohammed Abdellatef - University of New Mexico
Rahul. Chennareddy - Dibble Engineering
Mahmoud Taha - University of New Mexico

Session 5B: Admixture, Recycling & Composites
Moderators: Miladin Radovic, Zahid Hossain

Admixtures are commonly used to enhance the functional and durability properties of concrete especially when reclaimed materials and composites are used. In particular, this session presents the followings: (1) highly pseudo ductile metakaolin based engineered geopolymer composites, (2) feasibility of engineered cementitious composites implementing combined systems of post-processed bagasse ash and fly ash, (3) vacuum impregnation of bacillus pseudofirmus into fine lightweight aggregate, and (4) parametric study of reinforced metakaolin-based geopolymer concrete against chloride-induced corrosion.

Highly Pseudo Ductile Metakaolin Based Engineered Geo-polymer Composites Using 1% Volume Fraction UHMWPE Fiber
Ruwa Abufarsakh - Louisiana State University
Gabriel Arce - Louisiana State University
Marwa Hassan - Louisiana State University
Sujata Subedi - Louisiana State University
Oscar Huang - Texas A&M University
Miladin Radovic - Texas A&M University
Zhen Sang - Texas A&M University
Svetlana Sukhishvili - Texas A&M University

Feasibility of Engineered Cementitious Composites Implementing Combined Systems of Post-Processed Bagasse Ash and Fly Ash as SCMs
Sujata Subedi - Louisiana State University
Gabriel Arce - Louisiana State University
Marwa Hassan - Louisiana State University
Louay Mohammad - Louisiana State University

Vacuum Impregnation of Bacillus Pseudofirmus into Fine Lightweight Aggregate
Omar Omar - Louisiana State University
Momen Mousa - Louisiana State University
Marwa Hassan - Louisiana State University
Ricardo Hungria - Louisiana State University
Andrea Gavilanes - Louisiana State University
Gabriel Arce - Louisiana State University
Jose Milla - Louisiana State University
Tyson Rupnow - Louisiana State University

Parametric Study of Reinforced Metakaolin-based Geopolymer Concrete Against Chloride-induced Corrosion
Oscar Huang - Texas A&M University
Changkyu Kim - Texas A&M University
Nathaniel Lies - Texas A&M University
Homero Castaneda - Texas A&M University
Miladin Radovic - Texas A&M University

Technical Sessions

FRIDAY | 1:00pm – 2:00pm | Session 6

Session 6A: ITS, Sustainability & Safety
Moderators: Alexandr Sokolov, Sharareh Kermanshachi

In conjunction with Sessions 1A and 4A, this session presents three papers on: (1) evaluating the current enforcement system for bridge load posting, (2) a descriptive analysis of gender-based promotion factors in transportation agencies, and (3) investigation on tensile properties of roller compacted geopolymer and cement concrete using recycled concrete aggregate and reclaimed asphalt pavement.

Evaluating the Current Enforcement System for Bridge Load Posting
Md Adilur Rahim - Louisiana State University
Hany Hassan - Louisiana State University

A Descriptive Analysis of Gender-based Promotion Factors in Transportation Agencies
Behzad Rouhanizadeh - Univ. of Texas Arlington
Sharareh Kermanshachi - Univ. of Texas Arlington

Investigation on Tensile Properties of Roller Compacted Geopolymer and Cement Concrete Using Recycled Concrete Aggregate (RCA) and Reclaimed Asphalt Pavement (RAP)
Sk Syfur Rahman – Univ. of Louisiana at Lafayette
Mohammad Khattak – Univ. of Louisiana at Lafayette

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