



JIM MCNATT  
INSTITUTE FOR  
LOGISTICS RESEARCH

## Research BREAKS Sessions

All UNT researchers are invited to participate in a new research education series every first and third Thursday of the month. Each session will be led by a topic expert in the field in order to elevate best practices, while answering some of the most frequently asked questions by UNT researchers related to the topic. These hour-long discussions are a comfortable conversation where no question is too basic, too simple, or too complicated. Our team of research experts will bring the conversation topics to the researchers.

### Research BREAKS for February:

#### [Working with DOD and the new security protocols](#)

Thursday, February 3  
4:00 to 5:00 PM  
Held via [Zoom](#)  
More info [RSVP](#)

#### [High Performance Computing at UNT](#)

Thursday, February 17  
4:00 PM  
Held via [Zoom](#)  
More info [RSVP](#)



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## Current Events

### First Innovation Group from US Army Reserve Visits UNT



The U.S. Army Reserve's 75th Innovation Command First Innovation Group and UNT faculty and staff met to discuss collaboration opportunities. Presentation topics included research work conducted by College of Engineering faculty and students, supply chain logistics, and UNT's Division of Research and Innovation commercialization initiative. Attendees discussed potential military applications of UNT research, as well as implications of the supply chain crisis on the military.

To read more about the visit and collaboration between UNT and U.S. Army Reserve's 75th Innovation Command First Innovation Group, as well as a special award given to Marty O'Neill, associate director of UNT's Center for Computational Epidemiology and Response Analysis, click [here](#).

### Outdoor Flight Test Facility Coming to UNT

The UNT Center for Integrated Intelligent Mobility Systems (CIIMS), in sponsorship with the Jim McNatt Institute for Logistics Research, the College of Engineering (CENG), the UNT Division of Research and Innovation, and Office of the President, are building a first-of-its-kind outdoor mesh test facility that supports research and testing for both air and ground autonomous vehicles. The facility will be the only one in Texas that combines ground and air autonomous vehicles and enables the testing of larger-sized drones with advanced capabilities, including communications, line-of-sight and ground penetrating radar.



The outdoor flight test facility will be used to support grant research as well as provide learning experiences for high school two-year and four-year college students

### Research on Tap Kicks-off With Presentation by Terry Pohlen



UNT's Division of Research and Innovation and Armadillo Ale Works hosted the inaugural session of Research on Tap. Jim McNatt Institute Director, Dr. Terry Pohlen, addressed supply chain issues affecting the availability of products ranging from cars to grocery items. He also discussed the importance of logistics to the DFW region, and the ongoing research to increase supply chain resiliency through the use of drones, robots, and autonomous vehicles. The Facebook Live video link of Dr. Pohlen's presentation is available [here](#).

The monthly speaker series engages UNT researchers with the community through micro-talks on timely and interesting topics. February's presentation will be given by Dr. Liz Skellam and provides information on the contributions of fungi to fermentation and medications. You can RSVP for the event [here](#).





## Proposals

### Selected List of Proposals Submitted in January

Proposal Title/Topic: Towards the Automation of Network Analysis of Actors and Activities in Illicit Networks

Funding Agency: DHS/CINA

Proposal Title/Topic: Optimizing Field Technician Dispatching and Re-Dispatching Policies for Cable Equipment Installation

Funding Agency: Shaw Communications

### Proposals in Development

Proposal Title/Topic: Develop Texas Electric Vehicle Charging Infrastructure Readiness Plan

Funding Agency: Texas Department of Transportation

Proposal Due Date: Friday, February 25

Proposal Title/Topic: Guidelines for Integration of UAS LiDAR and Photogrammetry to Enhance Land Surveying Capabilities

Funding Agency: Texas Department of Transportation

Proposal Due Date: Friday, February 25

## Research Profile

### Andrey Voevodin, Ph.D.

Background:

[Dr. Andrey Voevodin](#) is a Professor in the Department of Materials Science and Engineering and Associate Dean for Research in the College of Engineering, University of North Texas (UNT). Together with Dr. Pohlen, he co-directs the Center for Integrated Intelligent Mobility Technology.

Research Interests:

- Tribology, friction reduction & wear protective coatings
- Functional materials for electronic and optoelectronic devices
- In-situ diagnostics of laser assisted additive manufacturing
- Thermal management and high temperature protective materials
- Plasma assisted physical vapor deposition processes and surface modification

Dr. Voevodin's research interests span applications ranging from low friction and wear protective surfaces in combustion and jet engines, to flexible electronic materials for optoelectronics, energy harvesting and biosensors, to ultra-high temperature material development for use in hypersonic flights and in-situ diagnostics of plasma plumes generated in laser assisted additive manufacturing of metal alloy components. These seemingly different areas are stemming from Dr. Voevodin's core expertise in material synthesis using plasma assisted processes and in-depth knowledge of physical-chemical-mechanical processes of surfaces and interfaces with decades of prior research expertise in these core areas.

Dr. Voevodin is engaged in several collaborative research projects with faculty at UNT as well as scientists in ARL and AFRL, and industry engineers (e.g. Pratt & Whitney, Woodward, UNT Tribology Consortia with industry) on the listed applications, impacting future mobility technologies. These include a high robustness propulsion for drones, sensors materials for integration with drone flight control surfaces or application on human body for continues data feedback, ultra-high temperature materials for use in high Mach flight systems and reusable space access vehicles, acceleration of AM method adoption by industry for the point of need production of components for national defense, transportation and consumer goods needs and changing the logistics supply landscape of the future. Collaborating with the RCOB, HPS, and COS scientists, Dr. Voevodin is advancing the integrated intelligent mobility approaches of CIIMS in multidisciplinary research, positioning the team for federal (DoD, DoT, NASA), state (TXDoT), regional (NCTCOG, NTCMT) and industry funding support. While helping to lead College of Engineering research and the CIIMS team of about 40 faculty from five UNT colleges toward new research opportunities, Dr. Voevodin also maintains his research group of three PhD and two MS students, and is active in professional society meetings and research. He is a Fellow of AVS Professional Society and has over 300 scientific publications, 15,000 citations (h-index=68), holds 12 patents, authored eight book chapters, and a book.

List of ongoing research projects:

- **Materials for Internal Combustion Engines**
- **In-situ monitoring of laser additive manufacturing processes with spectroscopic methods**
- **Low temperature synthesis of semiconductors and dielectrics for flexible electronic materials**
- **Ultra-high temperature stable morphing materials for hypersonic applications**

## In The Media

### CIIMS Researcher Highlighted by Local Media

Associate Research Professor of Logistics, Michael Bomba, was featured regarding his research for the State of Texas regarding efforts to get commercial space travel on [ABC25 in Central](#)

## Funding Opportunities

If interested in applying, please email [Kathy Dreyer](#)

Proposal Title/Topic: [Toolbox for Navigating the Land-Use Impacts of the Automated Vehicle Ecosystem](#)

Funding Agency: Transportation Research Board

**Proposal Due Date: Friday, February 25, 2022**

Proposal Title/Topic: [Assessing and Measuring the Business Value of Knowledge Management](#)

Funding Agency: Transportation Research Board

**Proposal Due Date: Friday, February 25, 2022**

