



# Trenchless Technology Center *Newsletter*

J U N E 2 0 1 2

## TTC HTGeopolymer Wins Technology Product of the Year

Dr. Erez Allouche, associate professor of civil engineering and director of the Trenchless Technology Center at Louisiana Tech University, has won Technology Product of the Year honors from the Louisiana Technology Council (LTC) and the North Louisiana Economic Partnership (NLEP) for his innovative, “green” geopolymer concrete technology.

Dr. Allouche received the “eWARD” for the Shreveport/Bossier City Northern Louisiana region during a ceremony the week of May 21 sponsored by CenturyLink. eWARDS is a cooperative program designed to recognize the technological achievements of Louisiana’s top companies, organizations and individuals. Organizers say eWARDS is a celebration of innovation and achievement for those in the community that have made a positive impact in the technology industry over the past year.

Over the past few years, Dr. Allouche has led a team of researchers at Louisiana Tech to develop his patented geopolymer binder technology with emphasis on commercialization in the fields of enhancing the longevity of wastewater conveyance and storage systems and refractory applications. Allouche’s unique process uses a sodium silicate based formulation to convert waste by-products, specifically fly ash from coal-fired power plants, into a high performance corrosion and fire resistant material.

Compared to Portland cement, geopolymer technology reduces the “carbon footprint” by 90 percent and energy consumption by 85 percent. This “green” technology saves landfill space and reduces risk of contamination of aquifers and bodies of surface water.

“Dr. Allouche has received strong support for his novel geopolymer research from utility companies, product manufacturers, contractors, and government agencies,” said Dr. Les Guice, vice president for research and development at Louisiana Tech. “His innovations are already attracting global commercial interests.”

To date test pads and specimens were placed in aggressive environments in a dozen industrial facilities in Louisiana, Texas, Arkansas and Mississippi. Test results to date are very encouraging, and a two-week testing program with NASA is scheduled to take place later this summer. The product could be either pre-cast, cast-in-place, trowel-in-place or spray-applied.



Drs. Allouche, Montes, and Kupwade-Patil inspecting a test patch of Geopolymer concrete in the flame trench following an AJ 26 rocket engine test in NASA’s Stennis Space Center. In view of the product’s successful performance, a comprehensive testing of the TTC’s HTGeopolymer product line is scheduled to take place at Stennis later this summer.

## Municipal Forum Updates

The TTC concluded its Spring Municipal Forum series May 30 in Fairfax, Va. Forums in Seattle, Columbus, Ohio, and Bloomington, Minn., were very successful with more than 150 participants. Previously scheduled forums in Dallas, Boston, and Aurora, Colo., have been rescheduled for the fall along with other locations that will be selected during the summer.

The Municipal Users' Forum for Trenchless Technology provides municipalities with high-caliber technical seminars focusing on local trenchless technology issues to help solve regional water and sewer problems. The TTC works with a local municipal representative along with national and international industry experts to organize a one-day workshop in numerous locations across North America to review and discuss specific trenchless technologies that are of regional interest. The industry experts address each topic through a vetted presentation that addresses the technology in a non-product specific presentation. The forums are non-profit and participant fees are targeted to keep municipality costs reasonable and help offset most of the direct forum expenses.

Municipalities and industry experts interested in hosting or participating in a forum can learn more about the program by visiting our website at [www.ttcmf.com](http://www.ttcmf.com) or by contacting Teresa Fletcher at [fletcher@latech.edu](mailto:fletcher@latech.edu) or Dr. Robert McKim [mckim@latech.edu](mailto:mckim@latech.edu).

## Jadranka Simicevic Leaves the TTC

Jadranka Simicevic has been one of the core members of the TTC since 1997, sharing her professional skills with the trenchless technology industry. In 1997, TTC Director Dr. Raymond Sterling realized the need for a highly skilled engineer to organize and oversee research, respond to industry inquiries and, generally, help him run the Center. Jadranka stepped up to the plate and remained with the Center until 2012, when she joined TTC's long-time IAB member, CH2M HILL, as a Conveyance Technologist. Jadranka is, naturally, specializing in trenchless technology applications with CH2M HILL. Jadranka received her Bachelor of Science in Civil Engineering from the University of Split in 1983 and her Master's degree in Environmental Engineering from the University of Zagreb (both in Croatia) in 1990. Prior to starting with the TTC, she worked as a Research Engineer with the Universities of Split, Zagreb, and Illinois at Urbana-Champaign.

Jadranka has been a tremendous resource for the trenchless industry over the past 15 years, providing high-quality information to consultants, contractors, municipalities and other research institutes. One of her most powerful legacies is the development of the TTC's Municipal Forum series where industry and municipalities are brought together in a non-commercial environment for an exchange of information. Working with the Directors and researchers at the TTC Jadranka generated scores of high-quality reports that have helped develop and guide the industry to its present status. Over the years Jadranka developed and maintained the most comprehensive database on underground infrastructure which remains unmatched anywhere.

All the members of the TTC family wish Jadranka the very best in her new career.



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June 2012

### Trenchless Technology Center

Louisiana Tech University

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**PROFESSOR OF CIVIL ENGINEERING & EMINENT SCHOLAR CHAIR IN CONSTRUCTION:** Dr. Rob McKim

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The TTC Newsletter is published as a department within Trenchless Technology. All newsletter materials are prepared by TTC. Communications should be directed to the center.

#### WHO WE ARE

The Trenchless Technology Center now employs 14 full-time staff members to fulfill its mission — advancing trenchless technology by serving as an independent source of knowledge, research and education:

**ADMINISTRATION:** Teresa Fletcher, Office Manager; and Fredda Wagner, Administrative Coordinator

**SOIL-STRUCTURE INTERACTION LAB:** Chris Morgan, Lab Manager; Dr. Chenguang Yang, Research Associate; and Jacob Pierce, Lab Assistant

**LINERS LAB:** Dr. Shaurav Alam, Liner Lab Manager

**SENSORS LAB:** Bryan Cady, EM Lab Technician; Fernando Puno, Research Associate; Connor Johnson, Research Associate; John Dighton, Research Associate; and Chris Bartlett, Lab Technician Assistant

**GEOPOLYMER:** Dr. Carlos Montes, Research Associate; and Dr. Kunal Kupwade-Patil, Research Associate