



CIVIL & ENVIRONMENTAL ENGINEERING SEMINAR SERIES

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New Jersey Institute of Technology



**Enhancing Bond in Textile Reinforced Concrete Materials:  
Experiments and Modeling**

Concrete is the second most widely consumed material on earth with applications across all forms of civil infrastructure. This presentation will explore the use of emerging concrete materials that can improve the durability and resilience of concrete systems. Specifically, concrete materials with enhanced ductility through the addition of textile fabrics and short-randomly oriented fibers will be discussed. On-going experimental and numerical work related to enhancing bond in textile reinforced concrete materials, supported by NJIT-BGU seed funding, will be presented. Research activities of NJIT and BGU researchers focus on investigating fabric treatment mechanisms that improve the hydrophilicity of the textile reinforcement. The effectiveness of various treatment methods is analyzed through pull-off and direct tension experiments, and samples are studied using advanced analytical techniques. Computational methods are used to study how treatment methods influence the interface properties between the cementitious matrix and textile reinforcement. The results from the experimental, analytical, and computational program will be used to inform new methods of treating alternative reinforcing systems to improve the durability and resilience of civil infrastructure.

Matthew Bandelt is an Assistant Professor and Associate Chair of Graduate Studies in the Department of Civil and Environmental Engineering at New Jersey Institute of Technology. He joined NJIT after receiving his doctoral degree from Stanford University where he was a National Science Foundation graduate research fellow. Dr. Bandelt has expertise in the areas of experimental testing and numerical simulation of novel concrete materials and structural components under mechanical loading and durability conditioning. He teaches undergraduate and graduate courses in the areas of mechanics, structural analysis, and design. Dr. Bandelt's research has been funded by the New Jersey Department of Transportation, the Federal Highway Administration, the United States Department of Transportation, and others.

Thursday, December 2nd, 2021 | 10:00 AM ET | 5:00 PM Israel

Click Here: [Zoom Meeting Link](#)