



UAA College of Engineering
UNIVERSITY of ALASKA ANCHORAGE

UAA Professional Development Seminar Series



Structural Health Monitoring of Bridges for Lifecycle Asset Management

Presented by Dr. Brittany Bullard

ABSTRACT: As U.S. infrastructure continues to age, more innovative designs and effective use of materials are needed to preserve and extend asset lifecycles.

Advances in technology have enabled more effective approaches to structural

asset management, particularly through the integration of instrumentation and monitoring which support the development of cost-efficient, resilient, and longer-lasting structural systems. The research presented here focuses on three types of structural health monitoring (SHM): event-based load testing, longer-term cast-in-place instrumentation, and satellites for remote sensing with InSAR. Through the combination of three types of SHM, a more comprehensive evaluation of assets can be made over the course of the service life of bridges. Three bridges were included in this study, all of which underwent rehabilitative construction to extend their service lives, including installing link slabs. Link slabs have been used in the U.S. for only 20 years, so little is known about their longer-term performance, lifecycle considerations, and potential for alternative materials rather than traditional reinforced regular-strength concrete. This presentation focuses on the use of SHM to evaluate link slab performance to enhance infrastructure rehabilitation possibilities.

BIO: Dr. Brittany Bullard was born and raised in Alaska. She received her BS and MS degrees in civil engineering from The University of Texas at Tyler, and her PhD from the University of Notre Dame. She currently serves as the Head Judge for the ASCE Frontier Student Symposium which encompasses Texas, Oklahoma, and Mexico. Past research has included topics such as: digital image correlation for nondestructive testing, assessment of the modulus of elasticity of adobe reinforced with natural fibers, evaluation of CMU shear walls with various configurations of joint reinforcement, investigating reinforcement schemes for use in 3D-printed concrete, experimental testing of cementitious materials, and structural health monitoring of bridges. Dr. Bullard currently works for RE/SPEC in the Facilities Group doing structural analysis and design work, specializing in reinforced concrete.

Friday, September 25, 2026

11:45 am - 12:45 pm

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