

## Structural Health Monitoring - Technology's Role in Preserving and Renewing Infrastructure

The objective of this presentation will be to introduce participants to mature technologies that can assist with quantitative assessment of infrastructure and construction monitoring activities. Over the last two decades enormous leaps related to sensing, simulation and information technologies have occurred. While they have impacted most engineering disciplines profoundly, they have yet to be widely embraced by the civil engineering profession. The specific topics to be covered in the presentation will include an introduction to structural monitoring describing what it is and what it isn't as well as applications for its use. A series of case studies that outline the implementation of various structural monitoring technologies within real-world civil engineering projects will be presented.

### Presenter: John Prader, PhD, PE

John Prader has more than 12 years of experience in the analysis, instrumentation, and monitoring of large constructed systems. At Intelligent Infrastructure Systems, Dr. Prader is responsible for leading the development and implementation of instrumentation and monitoring systems for emergency response and has managed a multiyear technical assistance effort for a state DOT.

His experience with Intelligent Infrastructure Systems also includes managing and participating in a wide range of technical activities including advanced finite element modeling, instrumentation design, and implementation of monitoring systems, truck load testing, operational modal analysis, and multi-reference impact testing. In addition, he has also worked on the development of risk models to support asset management, customization of risk models for inclusion of state specific data, and assisting with the integration of the developed risk models within an existing software used for bridge management.

Dr. Prader earned a PhD, MS and BS from Drexel University where he concentrated on structural and civil engineering. His PhD research focused on the development of rapid modal testing techniques for the evaluation of highway bridge structures. Dr. Prader has many publications in peer-reviewed journals and international conferences and currently serves as a reviewer for the Engineering Structures journal. Dr. Prader is a member of the American Society of Civil Engineers (ASCE), Structural Engineering Institute and is a Registered Professional Engineer in Pennsylvania.