Integrated Structural Health Monitoring Using Fiber Optic Sensors of Bridge A6358

Investigators: Dr. Nestore Galati (Research Engineer)
Dr. Filippo Bastianini (University of Naples-Italy)
Dr. Antonio Nanni (V&M Jones professor of Civil Engineering)

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Background:
A fully-distributed sensing technique using standard telecom fiber optics as fully-intrinsic sensors will be used in order to measure the strain along the girders of the bridge. This task will be accomplished by means of an AQ8603 Brillouin Optical Time Domain Reflectometer (BOTDR). Even though this technology was developed for telecom cable testing and optical fiber quality control, it can also be used for strain and temperature monitoring in a variety of structural applications, bringing several advantages over more traditional measuring techniques. In addition, the fiber optics mounted over the bridge can also be used for health status monitoring by performing Brillouin analysis on periodical basis, or, if required, continuously.

Objectives:
The scope of this project is the assessment of a High Performance Steel (HPS) bridge located at the Lake of the Ozarks in Miller County. The bridge numbers is A6358 and it is located on US Rt. 54/Osage River.