

SHM for bridges – the work flow

Christian Sodeikat ¹

¹ Ingenieurbüro Schiessl Gehlen Sodeikat GmbH, Munich, Germany
email: sodeikat@ib-schiessl.de

ABSTRACT:

Numerous bridges in Germany and worldwide are subject to high stress from increased heavy traffic and their advanced age. Due to advanced damage and unfavourable construction methods, many bridges can no longer be repaired at a reasonable cost and must be replaced with new structures. However, to maintain traffic flow, they often need to remain in operation for years and be monitored in real-time for deterioration to ensure safe continued use. Complex measurement systems are now available for this purpose, capable of detecting various structural conditions, such as strain, or events, such as acoustic emissions from wire breaks of the prestressed reinforcement.

The planning of a monitoring system should proceed in a stage manner. The first step involves identifying the structural weaknesses and potential damage mechanisms of the structure, such as wire breaks, crack formation of the cross-section or reinforcement corrosion etc. Based on this, the structural responses resulting from the damage mechanisms are determined. In the final planning step, the measurement systems suitable for measuring the structural responses are selected.

This keynote presents the workflow for planning a monitoring system and provides examples of the implementation, visualization and evaluation of various measurement systems and measurement data in a common monitoring system.

