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## Structural Health Monitoring for Civil Infrastructure - From Instrumentation to Decision Support

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In this paper, we examine the main components of structural health monitoring systems of civil infrastructure that are needed for a widespread implementation. These include instrumentation, structural system damage diagnosis and prognosis, and information delivery. The type of instrumentation is governed by the structural properties and types of damage anticipated to occur due to different loading and environmental conditions. Damage diagnosis is to a great extent dependent on the type of instrumentation used, the structural behavior, and the needs of the end-user of the information. Factors that are unique or specific to civil structures are highlighted and key impediments to implementation of the current state of monitoring are presented. It is recognized that one of the key impediments to implementation is the availability of damage diagnosis algorithms and tools. Current research on damage-diagnosis using statistical pattern recognition methods is briefly summarized drawing on the research of the author and her research team. The paper concludes with current gaps in knowledge and research needs that will advance the state of science and engineering in the field.

**Ключевые слова:**

**Содержание.**

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