



Код: 10108

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Structural Health Monitoring 2011. Volume 1

Издательство DEStech Publications, Lancaster, 2011 год

1384 стр; формат: 23,5 x 16 см; библиографический список: 1674 единиц
ISBN: 978-1-60595-053-2

This proceedings is a collection of papers detailing the most recent technology development in the field of Structural Health Monitoring (SHM) from around the world since 2009. These papers were presented at the 8th International Workshop on Structural Health Monitoring held at Stanford University on September 13-15, 2011. More than 325 papers were selected and included in the proceedings with applications expanding from traditional aerospace structures and civil infrastructures to marine/offshore and wind power infrastructures as well as structures in different platforms. Significant progress since the last meeting, in 2009, is clearly noticeable, particularly in area of sensors/actuators development, detection capabilities, and system maturation for implementation.

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