

# PROCEEDINGS OF SPIE

## ***Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems 2012***

**Masayoshi Tomizuka  
Chung-Bang Yun  
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*Editors*

**12–15 March 2012  
San Diego, California, United States**

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*Published by*  
SPIE

Part One of Two Parts

**Volume 8345**

Proceedings of SPIE, 0277-786X, v. 8345

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Please use the following format to cite material from this book:

Author(s), "Title of Paper," in *Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems 2012*, edited by Masayoshi Tomizuka, Chung-Bang Yun, Jerome P. Lynch, Proceedings of SPIE Vol. 8345 (SPIE, Bellingham, WA, 2012) Article CID Number.

ISSN 0277-786X  
ISBN 9780819490025

Published by

**SPIE**

P.O. Box 10, Bellingham, Washington 98227-0010 USA  
Telephone +1 360 676 3290 (Pacific Time) · Fax +1 360 647 1445  
SPIE.org

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## Introduction

This volume is a collection of technical papers presented at the 2012 SPIE Conference held in San Diego, California, on Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems. This conference is unique in the emerging area of sensors and smart structures technologies because of its multidisciplinary representations from the aerospace, civil, and mechanical engineering communities. Participants were from more than 20 countries around the globe. The conference also served as the de facto grantees' conference of the Sensors and Sensing Systems (SSS) program of the Civil, Mechanical and Manufacturing Innovation (CMMI) Division of the National Science Foundation (NSF). The participation of the Asian-Pacific Network of Centers for Research in Smart Structure Technology (ANCRiSST) as the conference co-sponsor strengthened international participations. As you find in the roster of the program committee, members of the program committee represented almost all the sub-disciplines of the engineering field. The conference showed growth over the past few years; this year, over 180 papers were submitted to the conference.

The conference started with a keynote session with two excellent keynote presentations: "Laser based structural health monitoring for civil, mechanical, and aerospace systems" by Professor Hoon Sohn, Korea Advanced Institute of Science and Technology (KAIST), and "Magnetostrictive sensors for civil, mechanical, and aerospace systems" by Professor Alison Flatau, University of Maryland. The opening plenary session was followed by 28 topical sessions and one poster session. The papers in these sessions covered a wide range of topics in: fiber optics and other novel sensors, structural health monitoring, signal processing, damage detection and assessment, wireless technologies, modeling and analysis of smart systems and applications to civil, mechanical, and aerospace systems. Research papers supported by the NSF SSS program were presented at both respective topical sessions and the NSF poster session. Lively discussions among SSS principal investigators and other participants took place during the poster session.

In conjunction with the broad technical base of the current conference program and its objectives, it is apparent that we must continue to develop and build a large, diverse constituency. In light of the increased number of submissions to this conference that we witnessed in recent years, we are optimistic in this regard. We would like to thank authors and presenters of this year's conference for their contributions. The outstanding conference program was put together by the fine efforts of the program committee, and we are thankful to the members of the program committee for their unyielding commitment to making the conference a great success.

Dr. S. C. Liu, the champion of the conference over the past decade, retired from the National Science Foundation in December 2011. On behalf of the entire conference, we would like to thank Dr. Liu for his intrepid leadership of the international advanced sensor technology and smart systems community—we will forever be indebted to him. This conference lives on as a monument to his countless contributions to our field.

**Masayoshi Tomizuka  
Chung-Bang Yun  
Jerome P. Lynch**