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Kevin M. Farinholt
Steven F. Griffin
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Contents

Authors

Numbers in the index correspond to the last two digits of the six-digit citation identifier (CID) article numbering system used in Proceedings of SPIE. The first four digits reflect the volume number. Base 36 numbering is employed for the last two digits and indicates the order of articles within the volume. Numbers start with 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 0A, 0B...0Z, followed by 10-1Z, 20-2Z, etc.

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1 Use of Piezoelectrics in Smart Structures
Gyuhae Park, Chonnam National University (Korea, Republic of)

2 Aerospace Applications of Smart Structures
Steven F. Griffin, Boeing LTS Inc. (United States)

3 Energy Harvesting
Kevin M. Farinholt, Luna Innovations Inc. (United States)

4 Technologies for Vibration Control
Alan L. Browne, General Motors Corporation (United States)

5 Applications of Shape Memory Alloys
Kevin M. Farinholt, Luna Innovations Inc. (United States)

6 Commercially Viable Smart Structure Technologies
Alan L. Browne, General Motors Corporation (United States)

7 In Memory of Ephrahim Garcia I
Donald J. Leo, The University of Georgia (United States)

8 In Memory of Ephrahim Garcia II
Daniel J. Inman, University of Michigan (United States)
Darren J. Hartl, Texas A&M University (United States)

Introduction

This volume includes technical papers covering research presented at the 2015 SPIE Industrial and Commercial Applications of Smart Structures Technologies conference held in San Diego, California. This conference provides researchers a unique forum to present and discuss mature, or maturing, technologies that are becoming viable solutions to scientific and engineering challenges in government, industrial, and consumer markets. A strong emphasis is placed on the insertion of smart structure technologies in real-world applications through, 1) the development of market-ready products, 2) subcomponent integration into existing systems, 3) modeling toolsets and software, and 4) advanced technology demonstrations that consider realistic environments beyond those of the standard laboratory setting.

The 2015 conference was well attended by academic, government, and industry participants from the Americas, Europe, and Asia. General sessions focused on the use of piezoelectric materials in smart structures and vibration control applications, energy harvesting using active materials, and control applications using shape memory alloys. Thanks go to Alan L. Browne for organizing a special session on technologies that are nearing commercial viability, with focus on several practical and logistical issues that must be addressed in transitioning from development to production stages of this process. This session included talks by Jeffrey Brown from Dynalloy on "SMA actuators: a viable practical technology," Qibing Pei from UCLA on "Large-strain bistable actuation: BSEP polymer materials, actuators, and applications," and Norm Wereley of the University of Maryland, College Park on "Magnetorheological energy absorbers and applications to occupant protection systems."

Several sessions at this year's conference were also organized to honor the memory of Ephrahim Garcia from Cornell University, who passed away on September 10, 2014. Dan Inman wrote that "Professor Ephrahim Garcia was a remarkable person not to be forgotten. He was extremely clever, had a tremendous work ethic, and lived life with gusto and purpose. Most of us know him for his contributions to our profession. However, he was also a wonderful husband, father, and friend. At times when his wife Maria was interning or starting her practice, Ephrahim was 'Mister Mom.' He was really a very remarkable man, able to balance an aggressive and successful career with a dedicated family life."

Ephrahim's professional contributions include many excellent papers and ideas. However, he also gave his time to serve the technical community in unselfish ways, first at DARPA, and later as editor of Smart Materials and Structures (SMS). As a DARPA program manager he kicked off the CHAPS program and infused funding into the community to push the technology forward. Then, he turned his attention to the smart wing program and created MAS (Morphing Aircraft Structures)

resulting in a great deal of excitement, the creation of a new company, and a host of fantastic research results. Both of these programs live on in our community as viable and forward-looking research topics. After leaving DARPA and re-establishing his professorial career at Cornell, he took over the leadership of SMS at a difficult time in the journal's history. Ephrahim restructured the review process, breathed new life into it, and raised it up into a viable and respected publication venue. Throughout all of these activities he supported our community through constant service to our various conference venues and technical committees, integrating new ideas and making us laugh and enjoy our business.

In his all too short life, he has made a tremendous impact on technology and on his friends and family. He is survived by his wife Maria, his son Isaac, and his daughter Sarah. We will all miss him a great deal. The conference committee would like to thank Dan Inman and Don Leo for their efforts to organize these talks, and the friends and colleagues of Ephrahim Garcia who participated in these memorial sessions.

The goal of our conference is to provide the Smart Materials and Structures community a venue for discussing research results and product development narratives, as well as non-technical hurdles that must be surmounted in transitioning technology out of the research environment. While the number of submissions has increased in recent years, more success stories need to be brought before the technical community to motivate and guide developments in the next generation of Smart Structures. Thank you to each of the authors and presenters for your technical contributions this year, and to the program committee and SPIE staff members for your efforts in making the 2015 conference such a success.

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Steven F. Griffin