

# PROCEEDINGS OF SPIE

## ***Emerging Digital Micromirror Device Based Systems and Applications***

**Larry J. Hornbeck  
Michael R. Douglass**  
*Editors*

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## Introduction

We are pleased to present to you a new conference at SPIE Photonics West 2009 held within the annual MOEMS-MEMS: Micro and Nanofabrication Symposium. This conference, titled "Emerging DMD-Based Systems and Applications," was an exciting forum for presenting and networking with colleagues in this internationally recognized symposium.

The digital micromirror device, a MOEMS-based spatial light modulator and its supporting chips, are enabling diverse and ever expanding applications. To further this research, the MOEMS-MEMS symposium organizers asked us to put together a conference considering directions other than the traditional projection display applications. In these proceedings, you will find 18 very interesting papers covering a wide range of applications. We categorized them into 4 separate sessions:

- Session 1 – Photomedical Applications for Advanced Research and Improved Patient Care
- Session 2 – Hyperspectral Imaging and Multi-Object Sensing
- Session 3 – Optical Techniques for 3D-Metrology, Calibration, and Microscopy
- Session 4 – Advanced Micromirror Projection Applications.

Our five invited authors are considered experts in their fields and we are honored that they participated in our conference. They and the other 14 authors shared their progress on developing new applications using a DMD to process light. Many of the developers are now using the DLP® Discovery kit which includes a DMD along with supporting components.

We want to thank our program committee for the great work they did developing the conference concept, finding such wonderful speakers and organizing the papers into a cohesive structure. Special thanks go to the session chairs for working with their authors, coordinating the conference, and keeping it on schedule. And of course extra special thanks to the authors who presented their subjects in such an interesting and passionate way. You made the conference a success.

We also want to thank Dr. Al Henning and Dr. Thomas Suleski (symposium chair and cochair) for inviting us to participate with this new conference. And of course thanks to the SPIE staff for keeping us on task.

If you were able to attend the conference, we hope you enjoyed it as much as we did and are looking forward to reading a more detailed account of each DMD applications paper. For those that did not attend, we think you will be

surprised at the impact DMD-based systems are having in the various application areas covered by the conference. Keep those innovations coming; who knows what might be around the next corner.

**Larry J. Hornbeck**  
**Michael R. Douglass**