

PROCEEDINGS OF SPIE

Sensors and Systems for Space Applications IV

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Editors

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Introduction

This conference, with this fourth successful consecutive offering in the operational concepts, principles and methodologies on sensors and systems for space applications, reflects a consensus of those participating from all over the globe. This international collaboration focuses on science and technology in and from space shows a glimpse of a future of space that completes a legacy established by the international space station that will last long after the international space station decays from orbit.

The keynote paper provided a doctrinal lesson that space affords a perfect observation post, but does not satisfy the U.S. Army criteria of high ground. Future space intelligence products need to go to the tactical users (boots on the ground) that need it. Information needs to be further processed to avoid information overload. Context is necessary to maximize the knowledge and usefulness of collected information. The evolving nature of future warfare seem to be going away from conventional peer engagements and toward irregular warfare where tactical effects will be needed more than strategic and operational effects.

To date, there have been nearly 100 papers from this conference series published in the Proceedings of SPIE. Since its initiation in 2008, the conference's title has been modified from Modeling, Simulation and Verification of Space-based Systems to reflect the broadening of the scope of the conference to include the state of the art not only from modeling, simulation and support test verification related to space-based systems, but also from sensor and optics control. The expanded scope also includes theoretical and application oriented space control, image collection, and exploitation. As the title indicates, these proceedings are spread across the three key facets of the developments in the field, namely, intelligent sensing, onboard planning and execution, and distributed decision making. As has been the practice, the session titles are adaptively categorized each year to represent the changing contents driven by autonomy technology developer community and spacecraft mission community. This year, the presentations have been grouped into the following 9 sessions:

- Data Exploitation
- Space Situational Awareness
- Resident Space Objects and Collision Avoidance
- Rendezvous and Docking
- Spacecraft Structures
- Keynote Session
- Photonics in Space
- Space-based Sensors
- Extraterrestrial Robotics.

Each year representatives from the program committee and conference participants from the government and commercial sectors involved in space exchange of ideas and promote the discussion of salient research, applications, and recent developments in a number of space sensor technology areas and autonomy in space. Toward this end, we plan to continue this series and look forward to your participation and the readership of this proceedings volume on ways to rejuvenate the growth of this conference and broaden its appeal on space photonics, fusion and awareness, and space defense related applications in the coming years. Further details regarding the call for papers and schedule for next year will be made available in due course at SPIE (<http://spie.org/>).

We are pleased to acknowledge the authors for choosing this avenue for publication of their technical contributions that resulted in quality work in the SPIE Digital Library. We also would like to take this opportunity to thank the members of our program committee and the session chairs for their tireless support to make this conference another success. Thanks are also due to SPIE staff for their invaluable help in making this all possible.

**Khanh D. Pham
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Greg J. Meyer**