

PROCEEDINGS OF SPIE

# ***CubeSats and SmallSats for Remote Sensing VI***

**Sachidananda R. Babu  
Charles D. Norton**  
*Editors*

**21 August 2022  
San Diego, California, United States**

*Sponsored and Published by*  
SPIE

**Volume 12236**

Proceedings of SPIE 0277-786X, V. 12236

SPIE is an international society advancing an interdisciplinary approach to the science and application of light.

The papers in this volume were part of the technical conference cited on the cover and title page. Papers were selected and subject to review by the editors and conference program committee. Some conference presentations may not be available for publication. Additional papers and presentation recordings may be available online in the SPIE Digital Library at [SPIDigitalLibrary.org](http://SPIDigitalLibrary.org).

The papers reflect the work and thoughts of the authors and are published herein as submitted. The publisher is not responsible for the validity of the information or for any outcomes resulting from reliance thereon.

Please use the following format to cite material from these proceedings:

Author(s), "Title of Paper," in *CubeSats and SmallSats for Remote Sensing VI*, edited by Sachidananda R. Babu, Charles D. Norton, Proc. of SPIE 12236, Seven-digit Article CID Number (DD/MM/YYYY); (DOI URL).

ISSN: 0277-786X

ISSN: 1996-756X (electronic)

ISBN: 9781510654563

ISBN: 9781510654570 (electronic)

Published by

**SPIE**

P.O. Box 10, Bellingham, Washington 98227-0010 USA

Telephone +1 360 676 3290 (Pacific Time)

[SPIE.org](http://SPIE.org)

Copyright © 2022 Society of Photo-Optical Instrumentation Engineers (SPIE).

Copying of material in this book for internal or personal use, or for the internal or personal use of specific clients, beyond the fair use provisions granted by the U.S. Copyright Law is authorized by SPIE subject to payment of fees. To obtain permission to use and share articles in this volume, visit Copyright Clearance Center at [copyright.com](http://copyright.com). Other copying for republication, resale, advertising or promotion, or any form of systematic or multiple reproduction of any material in this book is prohibited except with permission in writing from the publisher.

Printed in the United States of America by Curran Associates, Inc., under license from SPIE.

Publication of record for individual papers is online in the SPIE Digital Library.

**SPIE. DIGITAL  
LIBRARY**

[SPIDigitalLibrary.org](http://SPIDigitalLibrary.org)

---

**Paper Numbering:** A unique citation identifier (CID) number is assigned to each article in the Proceedings of SPIE at the time of publication. Utilization of CIDs allows articles to be fully citable as soon as they are published online, and connects the same identifier to all online and print versions of the publication. SPIE uses a seven-digit CID article numbering system structured as follows:

- The first five digits correspond to the SPIE volume number.
- The last two digits indicate publication order within the volume using a Base 36 numbering system employing both numerals and letters. These two-number sets start with 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 0A, 0B ... 0Z, followed by 10-1Z, 20-2Z, etc. The CID Number appears on each page of the manuscript.

# Contents

v *Conference Committee*

---

## **SESSION 1 MISSION OBSERVATIONS**

---

- 12236 02 **On-orbit results from the NASA TROPICS mission (Invited Paper)** [12236-2]
- 12236 03 **Bad pixel detection for on-board data quality improvement of remote sensing instruments in CubeSats** [12236-3]

---

## **SESSION 2 UPCOMING MISSIONS AND INSTRUMENTS**

---

- 12236 06 **Advanced Technology Land Imaging Spectroradiometer-Prototype (ATLIS-P) advanced technology demonstration (Invited Paper)** [12236-6]
- 12236 08 **VanZyl-1: demonstrating SmallSat measurement capabilities for land surface temperature and evapotranspiration** [12236-8]
- 12236 09 **Retrieval of gravity wave parameters using half interferograms measured by CubeSats** [12236-9]
- 12236 0A **Lunar Volatiles and Mineralogy Mapper (LVMM) payload for the lunar Volatile and Mineralogy Mapping Orbiter (VMMO)** [12236-10]

---

## **SESSION 3 PLATFORM AND SUBSYSTEM TECHNOLOGIES**

---

- 12236 0D **Improved Radiometric calibration of Imaging Systems (IRIS) for next generation small satellite imagers** [12236-13]
- 12236 0E **End-to-end design framework for compressed on-chip pixel-wise spectro-polarimeters** [12236-14]
- 12236 0F **Hyperspectral camera with zoom optics for CubeSats** [12236-15]