

Editors

Editor-in-Chief—*Peter K. Willett*
Associate Editor-in-Chief—*David F. Crouse*
VP Publications—*Maria S. Greco*
AESS President—*Joe Fabrizio*
Executive Assistant, AESS—*Jane Buckingham*

Contributing Editors

Awards—*Erwin C. Gangl*
Book Reviews Editor—*Darin Dunham*
Conferences—*Mark Davis*
Distinguished Lecturers & Tutorials—*Kathleen Kramer*
Education—*Kathleen Kramer*
History—*Hugh D. Griffiths*
Student Research—*Wenbo Dou, Federico Lombardi*
Technical Panels—*Walter Downing*
Tutorials Editor—*W. Dale Blair*
Website Updates—*Judy Scharmann*

Associate Editors and Areas of Specialty

Scott Bawden—*Energy Conversion Systems*
Erik Blasch, Roberto Sabatini—*Avionics Systems*
Dietrich Franken—*Communications, Signal Processing, and Data Fusion*
David Crouse—*Target Tracking*
Mauro De Sanctis—*Signal Processing and Communication in Aerospace Systems*
Michael Braasch—*Navigation, Positioning*
Giancarmine Fasano—*UAS*
Daniel O’Hagan—*Radar Systems*
Open—*Astronautic and Aeronautic Systems*
Haiying Liu—*Control System Engineering and Robotic Systems*
Michael Cardinale—*Electro-Optic and Infrared Systems, Image Processing*
Ruhai Wang—*Systems Engineering*
Peter Willett—*Multi-Sensor Systems*

How to Reach Us

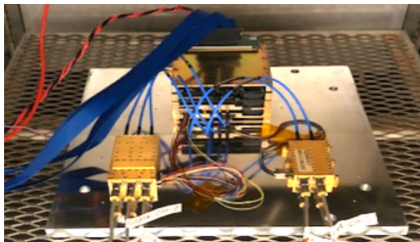
We welcome letters to the editor; but, we reserve the right to edit for space, style, and clarity. Include address and daytime phone number with your correspondence.

Email: Peter Willett,
peter.k.willett@gmail.com
David Crouse,
david.crouse@nrl.navy.mil
Michael J. Hellrigel,
m.hellrigel@ieee.org

Publishers: Send books for review to Darin Dunham, Lockheed Martin, 208 Buddy Tate Ln, Meridianville, AL 35759. If you have questions, contact Darin by e-mail at darin.t.dunham@lmco.com.

Advertisers

If you are interested in advertising in the AESS SYSTEMS Magazine, please contact Peter Willett at peter.k.willett@gmail.com



September 2019

ISSN 0885-8985

Volume 34 Number 9

COLUMN

In This Issue – Technically 2
Editors’ Note: Part 2 of the Special Issue series on CubeSats in Deep Space
F. Davarian, Y. Gao, P. Kinman 3

FEATURE ARTICLES

Water Electrolysis Propulsion as a Case Study in Resource-Based Spacecraft Architecture (February 2020)
K.P. Doyle, M.A. Peck 4
Nano Semihard Moon Lander: OMOTENASHI
T. Hashimoto, T. Yamada, M. Otsuki, T. Yoshimitsu, A. Tomiki, W. Torii, H. Toyota, J. Kikuchi, N. Morishita, T. Ito, Y. Kobayashi, A. Nagamatsu, H. Tanno, H. Morimoto 20
The Iris Deep-Space Transponder for the SLS EM-1 Secondary Payloads
M.M. Kobayashi, S. Holmes, A. Yarlagadda, F. Aguirre, M. Chase, K. Angkasa, B. Burgett, L. McNally, T. Dobrova, E. Satorius 34
Regenerative Ranging for JPL Software-Defined Radios
K.S. Angkasa, J.S. Border, C.B. Duncan, M.M. Kobayashi, Z.J. Towfic, T.J. Voss, P.W. Kinman 46

NEWS AND INFORMATION

AESS Senior Members Elevated in 2019 32
IEEE Aerospace & Electronic Systems Society Organization 2019 33
Christian Hülsmeier: Invention and Demonstration of Radar, 1904
H. Griffiths, P. Knott, W. Koch 56
Call For Papers: Special Issue on Artificial Intelligence for Data Fusion .. 62
Call For Papers: 2020 Systems Security Symposium 63
AESS Meetings & Conferences inside back cover