

2018 IEEE Aerospace Conference

**Big Sky, Montana, USA
3-10 March 2018**

Pages 1-740



**IEEE Catalog Number: CFP18AAC-POD
ISBN: 978-1-5386-2015-1**

**Copyright © 2018 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP18AAC-POD
ISBN (Print-On-Demand):	978-1-5386-2015-1
ISBN (Online):	978-1-5386-2014-4
ISSN:	1095-323X

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

TABLE OF CONTENTS

DEFECT TREND ANALYSIS OF C-130 ENVIRONMENTAL CONTROL SYSTEM BY DATA MINING OF MAINTENANCE HISTORY	1
<i>Irfan Anjum Manarvi ; Ishtiaq Hussain Butt</i>	
EVALUATING EFFECTIVENESS OF AIRCRAFT MAINTENANCE SAFETY MANAGEMENT SYSTEM TO REDUCE HUMAN ERRORS	7
<i>Irfan Anjum Manarvi ; Kazim Raza</i>	
THE ICE, CLOUD, AND LAND ELEVATION SATELLITE-2 — OVERVIEW, SCIENCE, AND APPLICATIONS	13
<i>Mark Seidleck</i>	
SCALING THE MARS OXYGEN ISRU EXPERIMENT (MOXIE) FOR MARS SAMPLE RETURN	21
<i>Maya Nasr ; Forrest Meyen ; Jeffrey Hoffman</i>	
FLUX-PINNED DYNAMICS MODEL PARAMETERIZATION AND SENSITIVITY STUDY	28
<i>Frances Zhu ; Laura Jones-Wilson ; Mason Peck</i>	
MODERNIZATION OF BLACKBODY TEMPERATURE CONTROL FOR THE ENHANCED MODIS AIRBORNE SIMULATOR (EMAS)	44
<i>Joshua B. Forgione ; Dayne H. Kemp ; Patrick S. Grant ; Roy G. Vogler</i>	
THE CENKI SPACE ECONOMIC SIMULATOR: ANALYTICAL VERIFICATION OF AN AGENT-BASED MODELING ENGINE	55
<i>Trevor Bennett ; Charles Cain ; N. S. Campbell ; Andrew A. J. Gerner ; John Marino ; Tobias Niederwieser ; Akhil Rao</i>	
EFFECTS OF INVERTED VISION ON HAND-POINTING PERFORMANCE IN ALTERED GRAVITY DURING PARABOLIC FLIGHT	64
<i>Ana Diaz Artilles ; Dario Schor ; Gilles Clément</i>	
SUNRISE STATUS: CONCEPT DEVELOPMENT UPDATE	73
<i>Farah Alibay ; Alexander M. Hegedus ; Justin C. Kasper ; T. Joseph W. Lazio ; Tim Neilsen</i>	
SEQUENTIAL INDEXATION OF FLIGHT DATA	84
<i>Jérôme Lacaille ; Cynthia Faure ; Madalina Olteanu</i>	
INFLUENCES OF ENHANCEMENT FACTOR MEASUREMENT TECHNIQUE ON THE KINETIC IMPACTOR MISSION DESIGN	92
<i>Simon Delchambre ; Tobias Ziegler ; Albert Falke ; Ulrich Johann ; Georg Willich ; Klaus Janschek ; Cristina Piedad ; Diego Trigueros</i>	
INTELLIGENT SEQUENTIAL SWITCHING SHUNT REGULATION FOR SATELLITE SOLAR ARRAYS	101
<i>Ahmed M. Kamel ; Usama R. AbouZayed ; Amged S. El-Wakeel ; Walid A. Wahballah</i>	
A LOW-THRUST-ENABLED SMALLSAT HELIOPHYSICS MISSION TO SUN-EARTH L5	112
<i>Natasha Bosanac ; Farah Alibay ; Jeffrey R. Stuart</i>	
PROPOSALS FOR A SPACE PRODUCT ASSURANCE PROCESS IMPROVEMENT BASED ON AN AERONAUTICAL PROCESS	124
<i>Cristiane Mariano ; Zavati Silva ; Guilherme Moreira de Souza ; Marcelo Lopes de Oliveira E. Souza</i>	
ACCURACY/COMPUTATION PERFORMANCE OF A NEW TRILATERATION SCHEME FOR GPS-STYLE LOCALIZATION	133
<i>Kar-Ming Cheung ; Glenn Lightsey ; Charles Lee</i>	
THE MACHINE TO END ALL MACHINES — TOWARDS SELF-REPLICATING MACHINES ON THE MOON	142
<i>Alex Ellery</i>	
IS MBSE HELPING? MEASURING VALUE ON EUROPA CLIPPER	159
<i>Todd Bayer</i>	
RADIATION-HARDENED SPACEVPX SYSTEM CONTROLLER	172
<i>Robert Merl ; Paul Graham</i>	
EVA SWAB TOOL TO SUPPORT PLANETARY PROTECTION AND ASTROBIOLOGY EVALUATIONS	178
<i>Michelle A. Rucker ; Drew Hood ; Mary Walker ; Kasthuri J. Venkateswaran ; Andrew C. Schuerger</i>	
IMPROVING THE USE OF RISK MATRICES AT NASA	186
<i>Robin L. Dillon ; Gerald A. Klein ; Edward W. Rogers ; Christopher J. Scolese</i>	
MODELING SPACECRAFT SAFE MODE EVENTS	197
<i>Travis Imken ; Thomas Randolph ; Michael DiNicola ; Austin Nicholas</i>	
VERIFICATION OF SOLAR ARRAY DESIGN FOR LOW EARTH ORBIT SPACECRAFT UNDER WORST CASE SCENARIO	210
<i>Ahmed Mokhtar Mohamed ; Fawzy ElTohamy H. Amer ; R. M. Mostafa ; Walid A. Wahballah</i>	
SCENARIO-BASED CASE STUDY ANALYSIS OF ASTEROID MITIGATION IN THE SHORT RESPONSE TIME REGIME	220
<i>Bernard D. Seery ; Kevin Greenaugh</i>	
A LOW-COST INS/GPS TIGHT INTEGRATION FOR RE-ENTRY NAVIGATION	228
<i>Francesco Nebula</i>	
SST ASTEROID SEARCH PERFORMANCE 2014–2017	242
<i>Jessica D. Ruprecht ; Herbert E. M. Vighh ; Jacob Varey ; Mark E. Cornell</i>	

ON-ORBIT VALIDATION OF THE ROLL-OUT SOLAR ARRAY	250
<i>Jeremy Banik ; Steve Kiefer ; Matt LaPointe ; Pete LaCorte</i>	
MEASUREMENTS OF A COMPACT KU- AND KA-BAND 4x4 ARRAY FOR REMOTE SENSING	259
<i>Ramila Shrestha ; Abu M. Numan-Al-Mobin ; Dimitris E. Anagnostou ; Stephen J. Horst ; James P. Hoffman</i>	
VISUAL GPS-DENIED MULTI-AGENT LOCALIZATION & TERRAIN CLASSIFICATION	267
<i>Benjamin S. Chiel ; John Baillieul</i>	
JOURNEY 'ROUND THE SUN: STEREO SCIENCE AND SPACECRAFT PERFORMANCE RESULTS	279
<i>Daniel A. Ossing ; Therese A. Kucera ; Georgia A. de Nolfo ; David A. Quinn</i>	
MANIFOLD LEARNING ALGORITHMS FOR SENSOR FUSION OF IMAGE AND RADIO-FREQUENCY DATA	294
<i>Dan Shen ; Peter Zulch ; Marcello Distasio ; Erik Blasch ; Genshe Chen ; Zhonghai Wang ; Jingyang Lu ; Ruixin Niu</i>	
INITIAL ASTROMETRY OF THE JUNO SPACECRAFT ORBITING JUPITER	303
<i>Dayton L. Jones ; Jonathan D. Romney ; William M. Folkner ; Ryan S. Park ; Christopher S. Jacobs ; Vivek Dhawan</i>	
MULTIPLE MODEL TRAJECTORY GENERATION FOR UNCERTAIN TARGET SPIN DIRECTION	309
<i>David Sternberg</i>	
A STAR SHORTLISTING TECHNIQUE FOR A LOST-IN-SPACE MODE STAR TRACKER	321
<i>Mehta Deval Samirbhai ; Yan Wending ; Shoushun Chen</i>	
AN EFFICIENT ALGORITHM FOR RANGE, RANGE RATE AMBIGUITY RESOLUTION IN MPRF PULSE DOPPLER RADARS	329
<i>R. S. Narasimhan ; A. Vengadarajan ; K. R. Ramakrishnan</i>	
MITIGATION OF SIDELobe CLUTTER DISCRETE USING SIDELobe BLANKING TECHNIQUE IN AIRBORNE RADARS	338
<i>R. S. Narasimhan ; A. Vengadarajan ; K. R. Ramakrishnan</i>	
A MODEL-BASED TIME DISTRIBUTION IMPLEMENTATION FOR ASYNCHRONOUS SYSTEMS	350
<i>Christopher Creech ; Nick Chang</i>	
ROBUST MULTI-OBJECTIVE ASSET ROUTING IN A DYNAMIC AND UNCERTAIN ENVIRONMENT	358
<i>Gopi Vinod Avvari ; David Sidoti ; Lingyi Zhang ; Manisha Mishra ; Krishna Pattipati ; Charles R. Sampson ; James Hansen</i>	
CONCEPTS OF ACTIVE PAYLOAD MODULES AND END-EFFECTORS SUITABLE FOR STANDARD INTERFACE FOR ROBOTIC MANIPULATION OF PAYLOADS IN FUTURE SPACE MISSIONS (SIROM) INTERFACE	367
<i>Marko Jankovic ; Wiebke Brinkmann ; Sebastian Bartsch ; Roberto Palazzetti ; Xiu Yan</i>	
EXPLANATION OF CHANGE STUDY UPDATE TO EXAMINE THE COST, SCHEDULE, AND TECHNICAL CHANGES TO NASA PROJECTS	382
<i>Robert Bitten ; Stephen Shiinn ; Debra Emmons ; Christopher J. Scolese</i>	
THE EFFECT OF POLICY CHANGES ON NASA SCIENCE MISSION COST & SCHEDULE GROWTH	393
<i>Robert Bitten ; Charles Hunt ; Debra Emmons ; Robert Kellogg ; Eric Mahr ; Sarah Lang</i>	
ATTITUDE CONTROL OF A NANOSATELLITE SYSTEM USING REINFORCEMENT LEARNING AND NEURAL NETWORKS	403
<i>Deigant Yadava ; Raunak Hosangadi ; Sai Krishna ; Pranjal Paliwal ; Avi Jain</i>	
A HAPPY FIRMWARE/SOFTWARE DEVELOPMENT MEDIUM	411
<i>Michael A. Cerabona ; Wesley P. Millard</i>	
MISSION ANALYSIS FOR NEXT-GENERATION RTG STUDY	421
<i>Brian Bairstow ; Young H. Lee ; Knut Oxnevad</i>	
CREATING INNOVATIVE FRAMEWORKS TO SPUR CULTURAL CHANGE AT THE NASA ARMSTRONG FLIGHT RESEARCH CENTER	440
<i>Amod Samuel ; Olivia Carte ; Joel Lozano ; Troy Robillos</i>	
DEEP SPACE GATEWAY ARCHITECTURE TO SUPPORT MULTIPLE EXPLORATION & DEMONSTRATION GOALS	456
<i>Matthew Duggan ; Travis Moseman</i>	
REAL-TIME ESTIMATION OF SATELLITE'S TWO-LINE ELEMENTS VIA POSITIONING DATA	464
<i>Shu Ting Goh ; Kay-Soon Low</i>	
DESIGN AND EVALUATION OF AN END-EFFECTOR FOR A RECONFIGURABLE MULTI-ROBOT SYSTEM FOR FUTURE PLANETARY MISSIONS	471
<i>Wiebke Brinkmann ; Thomas M. Roehr ; Sankaranarayanan Natarajan ; Florian Cordes ; Roland U. Sonsalla ; Roman Szczuka ; Sebastian Bartsch ; Frank Kirchner</i>	
SPACE LAUNCH SYSTEM: NEAR TERM MISSIONS ON THE JOURNEY TO MARS	481
<i>Terry D. Haws ; Joshua S. Zimmerman ; Michael E. Fuller</i>	
EVOLUTIONARY ALGORITHMS FOR NEAR-OPTIMUM DETECTION OF MULTI-BEAM SATELLITE SIGNALS	491
<i>Claudio Sacchi ; Talha Faizur Rahman ; Cosimo Stallo ; Marina Ruggieri</i>	
COMPACT LOW POWER AVIONICS FOR THE EUROPA LANDER CONCEPT AND OTHER MISSIONS TO OCEAN WORLDS	499
<i>Gary Bolotin ; Donald Hunter ; Doug Sheldon ; Yutao He ; David Foor</i>	
DESIGN AND DEVELOPMENT OF A LOW-COST CUBESAT ATTITUDE CONTROL SYSTEM TESTING PLATFORM	509
<i>Kourosh Rahnamai ; Thomas Searles ; Ryan Parker</i>	
UBIQUITOUS SURVEILLANCE NOTIONAL ARCHITECTURE FOR SYSTEM-WIDE DAA CAPABILITIES IN THE NAS	515
<i>Chris A. Wargo ; Jason Glaneuski ; George Hunter ; John DiFelici ; Terry Blumer ; Dylan Haddon ; Pete Carros ; Robert J. Kerczewski</i>	

MULTI-STAGE MHT WITH AIRBORNE AND GROUND SENSORS	529
<i>S. Coraluppi ; C. Carthel ; B. Zimmerman ; T. Allen ; J. Douglas ; J. Muka</i>	
A CREWED LUNAR LANDER CONCEPT UTILIZING THE SLS, ORION, AND THE CISLUNAR DEEP SPACE GATEWAY	542
<i>Matthew Duggan ; James Engle ; Travis Moseman ; Xavier Simon ; Kavya Manyapu</i>	
AN AFFORDABLE LUNAR ARCHITECTURE EMPHASIZING COMMERCIAL AND INTERNATIONAL PARTNERING OPPORTUNITIES	552
<i>Robert Shishko ; Humphrey Price ; Brian Wilcox ; Adrian Stoica ; Scott Howe ; John Elliott</i>	
POSE ESTIMATION FOR NON-COOPERATIVE SPACECRAFT RENDEZVOUS USING CONVOLUTIONAL NEURAL NETWORKS	568
<i>Sumant Sharma ; Connor Beierle ; Simone D'Amico</i>	
TOWARD SCALING MODEL-BASED ENGINEERING FOR SYSTEMS OF SYSTEMS	580
<i>Laura Antul ; Sean Ricks ; Lance Cho ; Matt Cotter ; Ryan B. Jacobs ; Aleksandra Markina-Khusid ; Janna Kamenetsky ; Judith Dahmann ; Huy T. Tran</i>	
L₁ ADAPTATION AS A BOLT-ON ROBUSTIFYING CONTROL LAW TO A BASELINE DYNAMIC INVERSION SYSTEM	589
<i>Christopher M. Elliott ; Joshua A. Harris ; Greg Tallant</i>	
SYSTEM ARCHITECTURE FOR TRACKING PASSENGERS INSIDE AN AIRPORT TERMINAL USING RFID	597
<i>Juan Jose Garau Luis ; Bruce Cameron ; Edward Crawley ; Marc Sanchez Net</i>	
AN INEQUALITY CONSTRAINED ENSEMBLE KALMAN FILTER FOR PARAMETER ESTIMATION APPLICATION	613
<i>Shu Ting Goh ; Jing Jun Soon ; Kay-Soon Low</i>	
ADAPTATION OF SAILFISH TOPOLOGY IN FUSELAGE DESIGN AND PERFORMANCE COMPARISON WITH MODERN FUSELAGE	622
<i>Chhavi Chhavi ; T. Selvakumaran</i>	
PHASED ARRAY RADIO SYSTEM AIDED INERTIAL NAVIGATION FOR UNMANNED AERIAL VEHICLES	630
<i>Sigurd M. Albrektsen ; Torleiv H. Bryne ; Tor A. Johansen</i>	
A LOOP CLOSURE HIERARCHY TO IMPROVE THE ROBUSTNESS OF A WEARABLE VISION+INERTIAL NAVIGATION SYSTEM	641
<i>Ted J. Steiner ; Tristan C. Endsley ; Kevin R. Duda</i>	
TIME-TRIGGERED DATA TRANSFERS OVER SPACEWIRE FOR DISTRIBUTED SYSTEMS	648
<i>Kai Borchers ; Daniel Lüdtko ; Görschwin Fey ; Sergio Montenegro</i>	
MODELLING AND CONTROL OF A HYBRID ELECTRIC PROPULSION SYSTEM FOR UNMANNED AERIAL VEHICLES	659
<i>Ye Xie ; Al Savvaris ; Antonios Tsourdos ; Jason Laycock ; Andrew Farmer</i>	
AN X-BAND CLASS J GAN AMPLIFIER FOR RADAR REMOTE SENSING USING >50 VDC FETS	672
<i>G. Formicone ; J. Custer ; Wei Cheng</i>	
INITIAL OPERATIONS EXPERIENCE AND RESULTS FROM THE JUNO GRAVITY EXPERIMENT	680
<i>Dustin Buccino ; Daniel Kahan ; Oscar Yang ; Kamal Oudrhiri</i>	
TWO-SENSOR TRACKING OF MANEUVERING TRANSMITTERS	688
<i>Hanna Witzgall</i>	
USING A LASER ALTIMETER TO MEASURE TAKEOFF AND LANDING DISTANCE	695
<i>Brian A. Kish ; Christopher J. Kennedy ; Ralph D. Kimberlin ; Jannis Thoben</i>	
FAA PART 23 METHODS OF COMPLIANCE FOR AOA WARNING/LIMITING SYSTEMS	709
<i>Brian A. Kish ; Markus Wilde ; Ralph D. Kimberlin ; David G. Sizoo ; David G. Mitchell ; Lars Peter ; Patrick J. Laufffs ; Simon P. Schatz ; Jennifer Geehan</i>	
ESTABLISHMENT AND DESIGN OF AN EARTH-MOON COMMUNICATIONS NETWORK IN LUNAR POLAR ORBIT	722
<i>Anthony Genova ; Brian Kaplinger ; Markus Wilde ; Buzz Aldrin</i>	
A MODEL-BASED SYSTEMS ENGINEERING APPROACH FOR TECHNICAL MEASUREMENT WITH APPLICATION TO A CUBESAT	731
<i>David Kaslow ; Bradley Ayres ; Philip T. Cahill ; Laura Hart</i>	
OVERVIEW OF THE SPACECRAFT DESIGN FOR THE PSYCHE MISSION CONCEPT	741
<i>William Hart ; G. Mark Brown ; Steven M. Collins ; Maria De Soria-Santacruz Pich ; Paul Fieseler ; Dan Goebel ; Danielle Marsh ; David Y. Oh ; Steve Snyder ; Noah Warner ; Gregory Whiffen ; Linda T. Elkins-Tanton ; James F. Bell ; David J. Lawrence ; Peter Lord ; Zachary Pirkl</i>	
EFFECTS OF METALLIC PLASMA THRUSTER PLUME ON SOLAR CELLS	761
<i>Jonathan Kolbeck ; Xiuqi Fang ; Michael Keidar ; Jin S. Kang ; Michael Sanders ; Nicholas Bakulinski</i>	
ADAPTIVE DESIGN AND OPTIMIZATION OF A SHAPE-CHANGING DRONE	770
<i>Luke Henderson ; Falko Kuester</i>	
REMOTE SENSING OF VENUSIAN SEISMIC ACTIVITY WITH A SMALL SPACECRAFT, THE VAMOS MISSION CONCEPT	782
<i>Alan Didion ; Attila Komjathy ; Brian Sutin ; Barry Nakazono ; Ashley Karp ; Mark Wallace ; Gregory Lantoine ; Siddharth Krishnamoorthy ; Mayer Rud ; James Cutts ; Philippe Lognonné ; Balthasar Kenda ; Mélanie Drilleau ; Jonathan Makela ; Matthew Grawe ; Jörn Helbert</i>	
DESIGN, DEVELOPMENT AND QUALIFICATION OF A GAS-BASED DUST REMOVAL TOOL FOR MARS EXPLORATION MISSIONS	796
<i>Elizabeth Jens ; Barry Nakazono ; Iona Brockie ; David Vaughan ; Marlin Klatter</i>	

UAV TRACKING OF MOBILE TARGET IN OCCLUDED, CLUTTERED AND GPS-DENIED ENVIRONMENTS	804
<i>Fernando Vanegas ; Jonathan Roberts ; Felipe Gonzalez</i>	
MULTI AND HYPERSPECTRAL UAV REMOTE SENSING: GRAPEVINE PHYLLOXERA DETECTION IN VINEYARDS	811
<i>Fernando Vanegas ; Dmitry Bratanov ; John Weiss ; Kevin Powell ; Felipe Gonzalez</i>	
HIGH-RATE KA-BAND MODULATOR FOR THE NISAR MISSION	819
<i>Michael Pugh ; Igor Kuperman ; Michael Kobayashi ; Fernando Aguirre ; Michael Kilzer ; Carl Spurgers</i>	
AN ORBITING SAMPLE CAPTURE AND ORIENTATION SYSTEM ARCHITECTURE FOR POTENTIAL MARS SAMPLE RETURN	832
<i>Paulo Younse ; Jackson W. Strahle ; Marco Dolci ; Preston Ohta ; Karan Lalla ; Eric Olds</i>	
A SYSTEMS ARCHITECTING METHODOLOGY USING BLOOM'S TAXONOMY TO PROMOTE CREATIVE ENGINEERING SYNTHESIS	855
<i>Paulo Younse ; Jackson W. Strahle ; Karan Lalla ; Marco Dolci ; Preston Ohta ; Rama Adajian</i>	
APPLYING SYSTEM READINESS LEVELS TO COST ESTIMATES — A CASE STUDY	878
<i>Patrick K. Malone</i>	
JUNO AT JUPITER: THE MISSION AND ITS PATH TO UNVEILING SECRETS OF THE HISTORY OF THE SOLAR SYSTEM	896
<i>Stuart K. Stephens</i>	
LARGE NEAR-EARTH OBJECTS THAT ARE DIFFICULT TO DISCOVER	915
<i>Richard J. Wainscoat</i>	
PERFORMANCE EVALUATION OF TTETHERNET-BASED ARCHITECTURES FOR THE VEGA LAUNCHER	921
<i>Vincenzo Eramo ; Francesco G. Lavacca ; Marco Listanti ; Stefano Caporossi</i>	
NOVEL SINGLE STAGE POWER FACTOR CORRECTED LED DRIVER TOPOLOGY FOR SPACE CONSTRAINED APPLICATIONS OF AIRCRAFT EXTERIOR LIGHTING SYSTEM	927
<i>Pandu Ranga Rao Somarowthu ; Sunit Kumar Saxena ; Deepak Bhimrao Mahajan</i>	
HAZARD AVOIDANCE GUIDANCE FOR PLANETARY LANDING USING A DYNAMIC SAFETY MARGIN INDEX	935
<i>Xu Yuan ; Shengying Zhu ; Zhengshi Yu ; Pingyuan Cui</i>	
LOW-LEVEL COLLISION RISK MODELLING FOR UNMANNED AIRCRAFT INTEGRATION AND MANAGEMENT	946
<i>Aaron McFadyen ; Terrence Martin ; Tristan Perez</i>	
A NEW DEFINITION OF A RELIABLE AND ACCURATE AIRCRAFT HEIGHT	956
<i>Francesco Nebula</i>	
THERMAL COMFORT INVESTIGATION FOR COMMERCIAL AIRCRAFT CABIN BY USING CFD	962
<i>Ahmed M. Farag</i>	
MULTI-DISCIPLINARY SYSTEM DESIGN OPTIMIZATION FOR ALL-ELECTRIC GEOSTATIONARY COMMUNICATION SATELLITE	971
<i>Ryo Ujite ; Kentaro Nishi</i>	
VISION-BASED CONTROL AND GUIDANCE STRUCTURE FOR AUTOMATIC LANDING SIMULATIONS	979
<i>Laurent Clos-Cot ; Julien Templai ; Bálint Vanek ; Bálint Patartics</i>	
RELATIVE POSITION AND ATTITUDE ESTIMATION METHOD BASED ON ANTENNA ARRAYS	994
<i>Jiao Wang ; Jianping Yuan ; Ruonan Zhang</i>	
USING AN UAV FOR TESTING AN AUTONOMOUS TERRAIN-BASED OPTICAL NAVIGATION SYSTEM FOR LUNAR LANDING	1001
<i>Nikolaus Ammann ; Stephan Theil</i>	
THE USE OF PHM FOR A DYNAMIC RELIABILITY ASSESSMENT	1010
<i>Henrik Heier ; Simon Mehringskötter ; Christian Preusche</i>	
CONDITION MONITORING FOR FLIGHT PERFORMANCE ESTIMATION OF SMALL MULTIROTOR UNMANNED AERIAL VEHICLES	1020
<i>Daniel Wolfram ; Florian Vogel ; Dominik Stauder</i>	
SPACECRAFT VISUAL SERVOING WITH ADAPTIVE ZOOMING FOR NON-COOPERATIVE RENDEZVOUS	1037
<i>Jorge Pomares ; Leonard Felicetti ; Javier Perez ; M. Reza Emami</i>	
A COMPACT PAYLOAD SYSTEM FOR TWO FORMATION-FLYING MICROSATELLITES IN THE CHANG'E IV MISSION	1045
<i>Li Zhou ; Junshe An ; Zhugang Wang ; Lin Wu ; Fei Zhao ; Jinxiu Zhang ; Xianren Kong</i>	
PIECEWISE OPTIMAL TRAJECTORIES OF OBSERVER FOR BEARINGS-ONLY TRACKING OF MANEUVERING TARGET	1052
<i>Huilong Zhang ; François Dufour ; Jonatha Anselmi ; Dann Laneville ; Adrien Nègre</i>	
SURFACE TECHNOLOGY FOR POLYMER PARTS FOR SPACE APPLICATIONS MADE BY ADDITIVE MANUFACTURING	1059
<i>Andreas Dietz ; Egbert van der Veen ; Bernd Rauch ; Reinhard Schlitt</i>	
SIMULATION OF PRECISE AND SAFE LANDING NEAR A PLUME SOURCE ON ENCELADUS	1065
<i>Kostas Konstantinidis ; Julian Adler ; Manuel Thies ; Roger Förstner</i>	
ONBOARD TARGETING LAW FOR FINITE-TIME ORBITAL MANEUVER IN CISELUNAR ORBIT	1080
<i>Satoshi Ueda ; Naomi Murakami ; Toshinori Ikenaga</i>	

DESIGN AND OPTIMIZATION OF A STATOR TURBINE BLADE PROFILE USING CONTROL PARAMETERS	1097
<i>Uday Chandra Gollapalli ; Chhavi Chhavi</i>	
FEASIBILITY OF AN INNOVATIVE TECHNIQUE FOR NOISE REDUCTION IN SPACECRAFT DOPPLER TRACKING	1109
<i>Virginia Notaro ; Mirco J. Mariani ; Andrea Di Ruscio ; Luciano Iess ; John W. Armstrong ; Sami W. Asmar</i>	
CONCEPTUAL DESIGN OF AN ELECTROMAGNETIC DETUMBLING SYSTEM MADE BY PERMANENT MAGNET ARRAY	1119
<i>Xiaoguang Liu ; Yong Lu ; Yuanhao Yin</i>	
CONCEPT OF AUTONOMOUS GNC AIDED OPERATION SYSTEM FOR FUTURE MANNED LUNAR PINPOINT LANDING	1126
<i>Xiuqiang Jiang ; Shuang Li</i>	
OPTIMAL PATH PLANNING FOR SUAS WAYPOINT FOLLOWING IN URBAN ENVIRONMENTS	1134
<i>Michael D. Zollars ; Richard G. Cobb ; David J. Grymin</i>	
A NUMERICAL ALGORITHM TO ESTIMATE AN ACHIEVABILITY LIMIT FOR CREWED PLANETARY LANDING	1142
<i>Edward A. Zuzula ; Jordan B. Dixon ; Elliott Davis ; Kathrine Bretl ; Carlos Pinedo ; Torin K. Clark</i>	
RETENTION OF CROSS-COUPLED ILLUSION TRAINING TO ALLOW FOR A SHORTER RADIUS SPACE CENTRIFUGE	1149
<i>Kathrine Bretl ; T. R. Mitchell ; Sage Sherman ; Aaron McCusker ; Jordan B. Dixon ; Torin K. Clark</i>	
RELATIVE RANGE ESTIMATION USING SDR FOR SPACE TRAFFIC MANAGEMENT	1156
<i>Z. Bouhanna ; C. P. Bridges</i>	
ILLUMINATION EFFECTS ON SATELLITE ARTICULATION CHARACTERIZATION FROM A TRAJECTORY MATRIX USING OPTIMIZATION	1165
<i>David Curtis ; Richard Cobb</i>	
CONSIDERATIONS FOR ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING: APPROACHES AND USE CASES	1178
<i>Kapil Bakshi ; Kiran Bakshi</i>	
MODELLING PROCESSOR RELIABILITY USING LLVM COMPILER FAULT INJECTION	1186
<i>Y. Nezzari ; C. P. Bridges</i>	
ROBONAUT 2 AND WATSON: COGNITIVE DEXTERITY FOR FUTURE EXPLORATION	1196
<i>Julia M. Badger ; Philip Strawser ; Logan Farrell ; S. Michael Goza ; Charles Claunch ; Raphael Chancey ; Russell Potapinski</i>	
SYSTEM-LEVEL ACTUATOR TESTING FOR MARS ROVER APPLICATION	1203
<i>Kevin Edelson ; Brandon Benjamin ; Luis Dominguez ; Daniel Fuller ; Andrew Kennett</i>	
PROPULSION TRADE STUDIES FOR SPACECRAFT SWARM MISSION DESIGN	1211
<i>Andres Dono ; Laura Plice ; Joel Muetting ; Tracie Conn ; Michael Ho</i>	
JUNO'S SCIENCE PLANNING PROCESS: DEVELOPMENT AND EVOLUTION SINCE LAUNCH	1223
<i>Amy Snyder Hale</i>	
INSTRUMENT COMMISSIONING TIMELINE FOR NASA-ISRO SYNTHETIC APERTURE RADAR (NISAR)	1231
<i>Priyanka Sharma ; Joshua R. Doubleday ; Scott Shaffer</i>	
WING-INTEGRATED AIRBORNE ANTENNA ARRAY BEAMFORMING SENSITIVITY TO WING DEFLECTIONS	1244
<i>Bailey Miller ; Emily J. Arnold</i>	
CONTROL ORIENTED REDUCED ORDER MODELING OF A FLEXIBLE WINGED AIRCRAFT	1255
<i>Tamás Luspáy ; Tamás Péni ; Bálint Vanek</i>	
MERGING DODAF ARCHITECTURES TO DEVELOP AND ANALYZE THE DOD NETWORK OF SYSTEMS	1264
<i>James R. Enos ; Roshanak R. Nilchiani</i>	
CONCURRENT MANUEVER PLANNING FOR GEOSTATIONARY SATELLITES	1273
<i>Sumeet Satpute ; M. Reza Emami</i>	
MICROCONTROLLER IMPLEMENTATION OF THE BIASED DUAL-STATE DPCM	1279
<i>Amir Leon Liaghati</i>	
RATE ENVELOPE BASED TIME EFFICIENT STRATEGY FOR UPSET RECOVERY OF A FIGHTER AIRCRAFT	1286
<i>M. Ugur Akcal ; Batuhan Hostas ; N. Kemal Ure</i>	
APPLYING MODEL-BASED SYSTEM ENGINEERING TO MODELLING AND SIMULATION REQUIREMENTS FOR WEAPON ANALYSIS	1294
<i>Wayne Power ; Alfred Jeffrey ; Kevin Robinson</i>	
OVERVIEW AND RECONSTRUCTION OF THE ASPIRE PROJECT'S SR01 SUPERSONIC PARACHUTE TEST	1310
<i>Clara O'Farrell ; Chris Karlgaard ; Jake A. Tynis ; Ian G. Clark</i>	
A SCANNING LIDAR SYSTEM FOR ACTIVE HAZARD DETECTION AND AVOIDANCE DURING LANDING ON EUROPA	1328
<i>Eric Schindhelm ; Reuben Rohrschneider ; Shane Roark ; Carl Weimer</i>	
THE SURFACE WATER AND OCEAN TOPOGRAPHY MISSION	1335
<i>Parag Vaze ; Said Kaki ; Daniel Limonadi ; Daniel Esteban-Fernandez ; Guy Zohar</i>	
JUPITER MAGNETOSPHERIC BOUNDARY EXPLORER (JUMPER)	1344
<i>Robert W. Ebert ; Frédéric Allegrini ; Fran Bagenal ; Chip R. Beebe ; Maher A. Dayeh ; Mihir I. Desai ; Don E. George ; John Hanley ; Prachet Mokashi ; Neil Murphy ; Philip W. Valek ; Aron A. Wolf ; Chen-wan L. Yen</i>	

RESILIENT ARCHITECTURE PATHWAYS TO ESTABLISH AND OPERATE A PIONEERING BASE ON MARS	1361
<i>Robert Potter ; Sarag Saikia ; James Longuski</i>	
IMAGING X-RAY POLARIMETRY EXPLORER (IXPE) RISK MANAGEMENT	1379
<i>Cheryl Alexander ; William D. Deininger ; Randy Baggett ; Primo Attina ; Mike Bowen ; Chris Cowart ; Ettore Del Monte ; Lindsey Ingram ; William Kalinowski ; Anthony Kelley ; Steve Pavelitz ; Martin C. Weisskopf</i>	
AN OPTIMAL CONTROL MODEL FOR ASSESSING HUMAN AGILITY TRAJECTORIES	1393
<i>Christine Joseph ; Antonia Zaferiou ; Lauro Ojeda ; Noel Perkins ; Leia Stirling</i>	
HYBRID-ELECTRIC POWERED AEROSPACE SYSTEMS AND THE BATTERY ENERGY DENSITY REVOLUTION	1403
<i>Anandrao Biradar ; Paul DeBitetto ; Long Phan ; Luan Duang ; Sanjay Sarma</i>	
ARCHITECTURE OF A SURFACE EXPLORATION TRAVERSE ANALYSIS AND NAVIGATIONAL TOOL	1409
<i>Johannes Norheim ; Jeffrey Hoffman ; Dava Newman ; Tamar E. Cohen ; David S. Lees ; Matthew C. Deans ; Darlene S. S. Lim</i>	
RELIABLE AND SECURE SURVEILLANCE, COMMUNICATIONS AND NAVIGATION (RSCAN) FOR UNMANNED AIR SYSTEMS (UAS) IN CONTROLLED AIRSPACE	1420
<i>Denise S. Ponchak ; Fred L. Templin ; Greg Sheffield ; Pedro Taboso ; Raj Jain</i>	
DEVELOPMENT OF A GROUND TEST & ANALYSIS PROTOCOL FOR NASA'S NEXTSTEP PHASE 2 HABITATION CONCEPTS	1433
<i>Michael L. Gernhardt ; Kara H. Beaton ; Steven P. Chappell ; Omar S. Bekdash ; Andrew F. J. Abercromby</i>	
OBSERVATORY DESIGN FOR THE IMAGING X-RAY POLARIMETRY EXPLORER (IXPE) MISSION	1460
<i>William D. Deininger ; William Kalinowski ; Colin Peterson ; Jeff Bladt ; Brian Smith ; Kyle Bygott ; Larry Guy ; Sandra Johnson ; Zach Allen ; Scott Mitchell ; Darren Osborne ; Allyn Tennant ; Brian Ramsey ; Janice Houston ; Ettore Del Monte ; Alessio Trois</i>	
IMAGING X-RAY POLARIMETRY EXPLORER MISSION OVERVIEW AND SYSTEMS ENGINEERING STATUS	1474
<i>Janice Houston ; William Deininger ; Ettore Del Monte ; Jennifer Erickson ; William Kalinowski</i>	
A MATHEMATICAL MODEL FOR ASSESSING THE PROBABILITY OF CONTAMINATING EUROPA	1482
<i>Michael DiNicola ; Kelli McCoy ; Chet Everline ; Kirk Reinholtz ; Ethan Post</i>	
MISSION CONCEPT FOR A EUROPA LANDER	1502
<i>Jennifer Dooley</i>	
DYNAMICS AND CONTROL OF MICROWAVE GRANULAR IMAGER	1512
<i>Marco B. Quadrelli ; Darindra Arumugam</i>	
SINGLE EVENT MITIGATION FOR XILINX 7-SERIES FPGAS	1522
<i>T. Bates ; C. P. Bridges</i>	
ELECTRONIC PACKAGING AND PASSIVE DEVICES FOR LOW TEMPERATURE SPACE APPLICATIONS	1534
<i>Linda Del Castillo ; Mohammad Ashtijou ; Bianca Rhym ; Reza Ghaffarian ; Jean Yang-Scharlotta ; Don Hunter ; Eric Sunada ; Mohammad M. Mojarradi</i>	
EUROPA PIMS PROTOTYPE FARADAY CUP DEVELOPMENT	1546
<i>Matthew Grey ; Joseph Westlake ; Shawn Liang ; Erik Hohlfeld ; Alexander Crew ; Ralph McNutt</i>	
PLANNING AND OPTIMIZATION FOR A MULTIPLE SPACE DEBRIS REMOVAL MISSION	1561
<i>Mikkel Jorgensen ; Inna Sharf</i>	
REGION OF INTEREST AWARE COMPRESSIVE SENSING OF THEMIS IMAGES AND ITS RECONSTRUCTION QUALITY	1571
<i>Srija Chakraborty ; Ayan Banerjee ; Sandeep K. S. Gupta ; Philip R. Christensen</i>	
ERROR GROWTH OF TARGET STATES UTILIZING A SWARM OF AGENTS IN GPS DENIED AREA	1582
<i>Adam A. Johnson ; Kamesh Subbarao ; Kristen Johnson</i>	
MODEL-BASED ARCHITECTURE OPTIMIZATION FOR MAJOR ACQUISITION ANALYSIS OF ALTERNATIVES	1590
<i>Maj Michael LaSorda ; John Borky ; Ron Sega</i>	
DEVELOPMENT AND QUALIFICATION TEST OF 1.2-NM TORQUE REACTION WHEEL ASSEMBLY WITH LOW INDUCED VIBRATION	1600
<i>Kenichiro Nigo ; Takuya Kanzawa ; Takeshi Sekiguchi ; Shingo Obara ; Kazuaki Maniwa ; Naoki Kajita ; Yuta Suzaki ; Kazuhisa Tanabe ; Yusuke Saitou</i>	
THE CONCEPTUAL DESIGN OF A NOVEL, SMALL AND SIMPLE MARS LANDER	1609
<i>Ryohei Takahashi ; Ryo Sakagami ; Akifumi Wachi ; Yasko Kasai ; Shinichi Nakasuka</i>	
HUMPHRIES SPACE UTILITY MODULE	1619
<i>Aishwarya Gutti Shashidhar Gowda ; Fred Barez ; Peter Humphries</i>	
DESIGN OF SHOE PLATE FOR SMALL HOPPING ROVER ON LOOSE SOIL	1625
<i>Takao Maeda ; Yasuharu Kunii ; Kent Yoshikawa ; Masatsugu Otsuki ; Tetsuo Yoshimitsu ; Takashi Kubota</i>	
MULTIPHYSICAL SIMULATION OF A SEMI-AUTONOMOUS SOLAR POWERED HIGH ALTITUDE PSEUDO-SATELLITE	1632
<i>Reiko Müller ; Jane Jean Kiam ; Federico Mothes</i>	
PROVIDING ACCOUNTABILITY AND LIABILITY PROTECTION FOR UAV OPERATIONS BEYOND VISUAL LINE OF SIGHT	1648
<i>J. Yapp ; R. Seker ; R. Babiceanu</i>	
AIDED INERTIAL NAVIGATION OF SMALL UNMANNED AERIAL VEHICLES USING AN ULTRA-WIDEBAND REAL TIME LOCALIZATION SYSTEM	1656
<i>Krzysztof Cisek ; Kristoffer Gryte ; Torleiv H. Bryne ; Tor A. Johansen</i>	

IN-FLIGHT PERFORMANCE ANALYSIS OF DIRECT RF SAMPLING ARCHITECTURE APPLIED TO VHF BAND AVIONICS	1666
<i>Anh-Quang Nguyen ; Abdessamad Amrhar ; Alireza Avakh Kisomi ; Xiaoxing Fang ; René J. Landry</i>	
INTELLIGENT DATA PROCESSING USING IN-ORBIT ADVANCED ALGORITHMS ON HETEROGENEOUS SYSTEM ARCHITECTURE	1685
<i>Nandinbaatar Tsog ; Moris Behnam ; Mikael Sjödin ; Fredrik Bruhn</i>	
FLIGHT CONTROL ORIENTED BOTTOM-UP NONLINEAR MODELING OF AEROELASTIC VEHICLES	1693
<i>Béla Takarics ; Bálint Vanek ; Aditya Kotikalpudi ; Peter Seiler</i>	
TENSOR PRODUCT TYPE POLYTOPIC LPV MODELING OF AEROELASTIC AIRCRAFT	1703
<i>Béla Takarics ; Alexandra Szöllösi ; Bálint Vanek</i>	
BRIDGING THE GAP BETWEEN TESTING AND SAFETY CERTIFICATION	1713
<i>Aiman Gannous ; Ameliese Andrews ; Barbra Gallina</i>	
URANIUM BASED MATERIALS AS POTENTIAL THERMOELECTRIC COUPLES FOR FUTURE RADIOISOTOPE POWER SYSTEMS	1731
<i>Christofer E. Whiting ; Erick S. Vasquez ; Chadwick D. Barklay</i>	
DEEP SPACE GATEWAY CONCEPT: EXTENDING HUMAN PRESENCE INTO CISLUNAR SPACE	1740
<i>Jason C. Crusan ; R. Marshall Smith ; Douglas A. Craig ; Jose M. Caram ; John Guidi ; Michele Gates ; Jonathan M. Krezel ; Nicole B. Herrmann</i>	
INTEGRATING TIME-SYNCHRONIZED VIDEO WITH OTHER GEOSPATIAL AND TEMPORAL DATA FOR REMOTE SCIENCE OPERATIONS	1749
<i>Tamar E. Cohen ; David S. Lees ; Matthew C. Deans ; Darlene S. S. Lim ; Yeon Jin Lee</i>	
NEXT-GENERATION NASA EARTH-ORBITING RELAY SATELLITES: FUSING OPTICAL AND MICROWAVE COMMUNICATIONS	1759
<i>David J. Israel ; Harry Shaw</i>	
PHASED HELICAL ANTENNA ARRAY DESIGN FOR CUBESAT APPLICATION	1766
<i>Kameron LaCalli</i>	
DYNAMIC SENSOR FUSION USING LOCAL TOPOLOGY	1779
<i>Michael Robinson ; Janelle Henrich ; Chris Capraro ; Peter Zulch</i>	
DATA-DRIVEN QUALITY PROGNOSTICS FOR AUTOMATED RIVETING PROCESSES	1786
<i>Sara Pereira ; Marcia Baptista ; Elsa M. P. Henriques</i>	
NOWHERE TO HIDE? PASSIVE, NON-COOPERATIVE MARITIME SURVEILLANCE FROM A NANOSAT	1801
<i>E. C. Williams ; C. P. Bridges ; M. D. J. Bowyer</i>	
INTEGRATED MODELING STRUCTURAL TOOLS FOR THE GIANT MAGELLAN TELESCOPE DESIGN EFFORT	1811
<i>David Schwartz ; Kaylee Feigum ; Peter M. Thompson ; Clark Briggs</i>	
ASSURANCE OF MODEL-BASED FAULT DIAGNOSIS	1825
<i>Allen Nikora ; Priyanka Srivastava ; Lorraine Fesq ; Seung Chung ; Ksenia Kolcio</i>	
SMALL SPACECRAFT FOR PLANETARY ATMOSPHERIC, SURFACE, AND INTERIOR STRUCTURE USING RADIO LINKS	1839
<i>Sami W. Asmar ; Joseph Lazio ; David H. Atkinson ; David J. Bell ; James S. Border ; Ivan S. Grudinin ; Anthony J. Mannucci ; Robert A. Preston ; Harvey Elliott</i>	
NOVEL TRAJECTORY GENERATION AND ADAPTIVE EVOLUTIONARY FEEDBACK CONTROLLER FOR QUADROTORS	1847
<i>Babak Salamat ; Andrea M. Tonello</i>	
HIGH PERFORMANCE ENABLED SPACE OBJECT TRACKING VIA CLOUD COMPUTING	1855
<i>Sixiao Wei ; Bin Jia ; Zhijiang Chen ; Jingyang Lu ; Genshe Chen ; Khanh Pham ; Erik Blasch</i>	
FAULT MANAGEMENT PLANNING SUPPORT: FAULT MANAGEMENT VIEWER (FMV)	1864
<i>Carroll Thronesbery ; Pamela Fournier ; Eugene McMahon ; Mike Monahan ; Tim Olson</i>	
SOUNDING ROCKET DEVELOPMENT PROGRAM FOR PERU	1871
<i>Fredy M. Villanueva</i>	
SUPPORTING TESTS OF AUTONOMY: AUTONOMY REQUIREMENTS TESTER (ART)	1880
<i>Carroll Thronesbery ; Ayman Qaddumi ; Michael Merta ; Eugene McMahon ; Mike Monahan</i>	
ACTIVE ILLUMINATION RETURN FROM SPACE OBJECTS IN NON-KOLMOGOROV ATMOSPHERES	1887
<i>Jeremy P. Bos ; Jeffrey R. Beck</i>	
ARTIFICIAL INTELLIGENCE BASED DIRECTIONAL MESH NETWORK DESIGN FOR SPECTRUM EFFICIENCY	1894
<i>Jingyang Lu ; Xingyu Xiang ; Dan Shen ; Genshe Chen ; Ning Chen ; Erik Blasch ; Khanh Pham ; Yu Chen</i>	
IS THERE A CASE FOR RADICAL CHANGE TO WEATHER SATELLITE CONSTELLATIONS?	1902
<i>Mark W. Maier</i>	
A JOINT PDA DATA DETECTION ALGORITHM WITH MMSE CHANNEL ESTIMATION FOR UPLINK TRANSMISSION OF MASSIVE MU-MIMO SYSTEM	1916
<i>Lun Li ; Dan Shen ; Xin Tian ; Genshe Chen ; Khanh Pham ; Erik Blasch</i>	
LAUNCH AND PRODUCTION SCHEDULE MODELING FOR SUSTAINED EARTH OBSERVATION CONSTELLATIONS	1923
<i>Mark W. Maier ; Eric Wendoloski ; Dan Houston ; James Wilson</i>	
PROGRESS TOWARDS FLIGHT SOFTWARE HYBRID CONTROLLERS FROM FORMAL SPECIFICATIONS	1939
<i>S. Haesaert ; L. J. Reder ; R. M. Murray</i>	

EFFICIENT RANDOM MULTIPLE-ACCESS USING ITERATIVE INTERFERENCE CANCELATION RECEIVERS	1956
<i>Lukas Grinewitschus ; Christian Schlegel</i>	
COMPREHENSIVE RADIO FREQUENCY LINK ANALYSIS OF GROUND-TO-AIR/AIR-TO-AIR COMMUNICATION IN URBAN AND RURAL SCENARIOS	1964
<i>Ruichen Wang ; Wenhao Xiong ; Yiran Xu ; Genshe Chen ; Khanh Pham ; Erik Blasch</i>	
THE CENKI SPACE ECONOMIC SIMULATOR: DEMONSTRATING AGENT-BASED MODELING ON SATELLITE MARKET DATA	1971
<i>Trevor Bennett ; Charles Cain ; N. S. Campbell ; Andrew A J Gerner ; John Marino ; Tobias Niedermieser ; Akhil Rao</i>	
DESIGN OF MOBILE SOLID PROPELLANT LAUNCH VEHICLE USING HYBRID OPTIMIZATION APPROACH	1984
<i>Fredy M. Villanueva</i>	
SPACE OBJECT CLASSIFICATION USING DEEP NEURAL NETWORKS	1993
<i>Bin Jia ; Khanh D. Pham ; Erik Blasch ; Zhonghai Wang ; Dan Shen ; Genshe Chen</i>	
ASSESSING THE SCIENCE ROBUSTNESS OF THE EUROPA CLIPPER MISSION: SCIENCE SENSITIVITY MODEL	2001
<i>Kelli McCoy ; Bassem Nairouz ; Ben Bradley ; Laura Jones-Wilson ; Sara Susca</i>	
3 AXIS SIMULATOR OF THE EARTH MAGNETIC FIELD	2014
<i>João Victor Lopes de Loliola ; Leticia Câmara van der Ploeg ; Rodrigo Cardoso da Silva ; Fernando Cardoso Guimarães ; Renato Alves Borges ; Geovany Araújo Borges ; Simone Battistini ; Chantal Cappelletti</i>	
AVOIDING THE IMPOSSIBLE: RE-FOCUSING A NON-FEASIBLE MISSION 2-HRS INTO A 3-DAY ENGINEERING SESSION	2022
<i>Thomas A. Youmans ; Jaiirus M. Hihn</i>	
SOFTWARE SYSTEM FOR THE MARS 2020 MISSION SAMPLING AND CACHING TESTBEDS	2036
<i>Kyle Edelberg ; Paul Backes ; Jeffrey Biesiadecki ; Sawyer Brooks ; Daniel Helmick ; Won Kim ; Todd Litwin ; Brandon Metz ; Jason Reid ; Allen Sirota ; Wyatt Ubellacker ; Peter Vieira</i>	
PRINTING AND MEASUREMENTS OF INK-JET DEPOSITED TRANSMISSION LINES FOR SPACE ELECTRONICS	2047
<i>Abu M. Numan-Al-Mobin ; Ramila Shrestha ; Jennifer Jordan ; Dimitris E. Anagnostou ; George E. Ponchak</i>	
AN AIR TRAFFIC CONTROL SIMULATOR FOR TEST AND DEVELOPMENT OF AIRSPACE MANAGEMENT SCHEMES	2055
<i>Dominique Meyer ; Tom Wypych ; Vid Petrovic ; James Strawson ; Shreyas Kamat ; Falko Kuester</i>	
GROUND SEGMENT ARCHITECTURES FOR LARGE LEO CONSTELLATIONS WITH FEEDER LINKS IN EHF-BANDS	2063
<i>Iñigo del Portillo ; Bruce Cameron ; Edward Crawley</i>	
THE IMPACT OF COMPLEXITY GROWTH ON INSTRUMENT RELIABILITY: A CASE STUDY OF CASSINI IMS AND MMS HPCA	2077
<i>Paul B. Wood ; Judith D. Furman</i>	
ANTICIPATED IMPACT OF THE CAPABILITY MATURITY MODEL INTEGRATION (CMMI®) V2.0 ON AEROSPACE SYSTEMS SAFETY AND SECURITY	2088
<i>Paul B. Wood ; David Vickers</i>	
ANALYSIS OF CMBR USING NANO-SATELLITE	2095
<i>Dhananjay Sahoo ; Avish Gupta</i>	
MODELLING AND EVALUATING FAILURES IN HUMAN-ROBOT TEAMING USING SIMULATION	2102
<i>Lanssie M. Ma ; Martijn IJtsma ; Karen M. Feigh ; Abhinay Paladugu ; Amy R. Pritchett</i>	
ADS-B AND CPDLC FAULT MODELING FOR SAFETY ASSESSMENT IN A DISTRIBUTED ENVIRONMENT	2118
<i>Varun S. Sudarsanan ; Michael Adam Jacobs ; Aleksandra Dervisevic ; Daniel DeLaurentis</i>	
DISTRIBUTED KALMAN FILTER WITH A GAUSSIAN PROCESS FOR MACHINE LEARNING	2132
<i>Michael Adam Jacobs ; Daniel DeLaurentis</i>	
DESIGN AND IMPLEMENTATION OF A REACTION WHEEL SYSTEM FOR CUBESATS	2144
<i>N. S. Krishna ; Sushmita Gosavi ; Shivika Singh ; Naman Saxena ; Anirudh Kailaje ; Vishwanath Datla ; Paras Shah</i>	
AN OVERVIEW OF NASA'S EXPLORATION MISSION 2 (EM-2)	2151
<i>R. Marshall Smith ; Michele Gates ; Amy Cassidy ; Jonathan Krezel</i>	
SYSTEM THEORETIC PROCESS ANALYSIS (STPA) OF THE MARS OXYGEN ISRU EXPERIMENT (MOXIE)	2162
<i>Forrest Meyen ; Akshata Krishnamurthy ; Jeffrey Hoffman</i>	
TELEOPERATION AND ROBOTICS UNDER ICE: IMPLICATIONS FOR PLANETARY EXPLORATION	2172
<i>Michael V. Jakuba ; Christopher R. German ; Andrew D. Bowen ; Louis L. Whitcomb ; Kevin Hand ; Andrew Branch ; Steve Chien ; Christopher McFarland</i>	
ADVANCEMENTS IN LOW-COST, LONG ENDURANCE, ALTITUDE CONTROLLED LATEX BALLOONS (VALBAL)	2186
<i>Andrey Sushko ; Aria Tedjarati ; Joan Creus-Costa ; Kai Marshland ; Paige Brown ; Davy Ragland ; John Dean ; Sasha Maldonado ; John M. Pauly</i>	
SMEAR EFFECT ON HIGH-RESOLUTION REMOTE SENSING SATELLITE IMAGE QUALITY	2196
<i>Walid A. Wahballah ; Taher M. Bazan ; Mohamed Ibrahim</i>	
ALGORITHMS FOR DIRECT RADIO DETECTIONS OF EXOPLANETS IN THE NEIGHBOURHOOD OF RADIATING HOST STARS	2203
<i>Mark J. Bentum</i>	

TERRAIN CONTOUR MATCHING WITH RECURRENT NEURAL NETWORKS	2210
<i>Seongheon Lee ; Hyochoong Bang</i>	
MOBILITY ISSUES IN COGNITIVE SATELLITE COMMUNICATION SYSTEMS OPERATING IN Q/V-BAND	2219
<i>Loredana Arienzo</i>	
TRANSFORMING CONDITION-BASED DATA SIGNATURES INTO FUNCTIONAL FAILURE SIGNATURES	2228
<i>James P. Hofmeister ; Douglas L. Goodman ; Ferenc Szidarovszky</i>	
AUTO-GENERATING REAL-TIME CAPABLE ROBOTICS CONTROL SOFTWARE FOR HIGHLY RECONFIGURABLE ROBOT PLATFORMS	2243
<i>Peter Godart ; Peter Vieira ; Gene Merewether ; Wyatt Ubellacker</i>	
A MULTI-MODAL MAPPING UNIT FOR AUTONOMOUS EXPLORATION AND MAPPING OF UNDERGROUND TUNNELS	2249
<i>Frank Mascarich ; Shehryar Khattak ; Christos Papachristos ; Kostas Alexis</i>	
SLUSH: EUROPA HYBRID DEEP DRILL	2256
<i>Kris Zacny ; Juergen Mueller ; Tighe Costa ; Tom Cwik ; Andrew Gray ; Wayne Zimmerman ; Paul Chow ; Fredrik Rehnmark ; Grayson Adams</i>	
HEURISTIC-BASED APPROACH: DEGRADATION SIGNATURES AND CBD SIGNATURES	2269
<i>James P. Hofmeister ; Douglas L. Goodman ; Ferenc Szidarovszky</i>	
PERFORMANCE MEASUREMENT OUTCOMES FROM PLANETARY SURFACE EXPLORATION ROBOTS	2283
<i>Carlos C. Insaurralde ; Thilo Kaupisch</i>	
DISTRIBUTED CONTROL ARCHITECTURE FOR AIRCRAFT FLUID MANAGEMENT	2293
<i>Carlos C. Insaurralde ; Jose M. Giron-Sierra</i>	
UPDATE ON THE DEPENDABLE MULTIPROCESSOR (DM7) ISS FLIGHT EXPERIMENT	2304
<i>John R. Samson ; Benjamin K. Malphrus</i>	
DEVELOPMENT OF A SURVEILLANCE TOOL USING UAV'S	2322
<i>Rodrigo Kuntz Rangel ; Alex Coschitz Terra</i>	
GRAVIMETRIC LOCALIZATION ON THE SURFACE OF SMALL BODIES	2333
<i>Benjamin Hockman ; Robert G. Reid ; Issa. A. D. Nesnas ; Marco Pavone</i>	
COMMUNICATIONS IN A CAVE ENVIRONMENT	2345
<i>William Walsh ; Jay Gao</i>	
ASTEROID DETUMBLING FOR REDIRECTION MISSIONS	2353
<i>Michael C. F. Bazzocchi ; M. Reza Emami</i>	
A MINIATURE IMAGING PAYLOAD FOR NANOSATELLITES	2360
<i>Joseph Aymond ; Christopher Peterson ; Kyle Foerster ; Naima Kaabouch</i>	
INTEGRATION OF A RADAR SENSOR INTO A SENSE-AND-AVOID PAYLOAD FOR SMALL UAS	2368
<i>Nickolas Gellerman ; Michael Mullins ; Kyle Foerster ; Naima Kaabouch</i>	
A PRELIMINARY EFFORT TOWARD INVESTIGATING THE IMPACTS OF ADS-B MESSAGE INJECTION ATTACK	2377
<i>Mohsen Riahi Manesh ; Michael Mullins ; Kyle Foerster ; Naima Kaabouch</i>	
LINKING ASTEROID DETECTIONS FROM THE LARGE SYNOPTIC SURVEY TELESCOPE	2383
<i>Steven R. Chesley ; Peter Vereš</i>	
HOLISTIC APPROACH TO SAFE OPERATION OF SMALL UAS IN CLASS G AIRSPACE	2394
<i>Stefan Chindea ; Pejman Irvani ; Jonathan Luke du Bois ; David Cleaver ; Anthony Lawrenson</i>	
INTERNATIONAL SPACE STATION TESTBED FOR EXPLORATION	2406
<i>Kathleen Gallagher Boggs ; Kevin D. Foley</i>	
MODULAR PAYLOAD-ITEMS FOR PAYLOAD-ASSEMBLY AND SYSTEM ENHANCEMENT FOR FUTURE PLANETARY MISSIONS	2412
<i>Wiebke Brinkmann ; Florian Cordes ; Thomas M. Roehr ; Leif Christensen ; Tobias Stark ; Roland U. Sonsalla ; Roman Szczuka ; Niklas A. Mulsow ; Felix Bernhard ; Daniel Kuehn</i>	
ROBONET: A DATA BUS FOR DISTRIBUTED CONTROL SYSTEMS	2424
<i>A. S. Donnan ; J. J. Holley</i>	
STRUCTURAL CERTIFICATION OF HUMAN-RATED INFLATABLE SPACE STRUCTURES	2430
<i>Thomas C. Jones</i>	
TRAJECTORY OPTIMIZATION OF MULTIROTOR AGRICULTURAL UAVS	2442
<i>Priyank Pradeep ; Sang Gyun Park ; Peng Wei</i>	
FULL-DUPLEX COMMUNICATIONS FOR NOISE-LIMITED SYSTEMS	2449
<i>Eugene Grayver</i>	
ULTRAWIDEBAND (5 GHZ) MIXED-SIGNAL FRONT END AND RECORDER FOR SOFTWARE DEFINED RADIO	2459
<i>Eugene Grayver ; Benjamin Davidson ; Chang Lee</i>	
A SOFTWARE-DEFINED RADIO TOOL FOR INTERFERENCE ANALYSIS	2467
<i>Eugene Grayver ; Sebastian Olsen</i>	
INITIAL CONSIDERATIONS OF A MULTI-LAYERED RUN TIME ASSURANCE APPROACH TO ENABLE UNPILOTED AIRCRAFT	2476
<i>Loyd R. Hook ; Mark Skoog ; Michael Garland ; Wes Ryan ; Dave Sizoo ; John VanHoudt</i>	
SCIENTIFIC AND HUMAN EXPLORATION MISSIONS ENABLED BY THE SPACE LAUNCH SYSTEM BLOCK 1B CONFIGURATION	2487
<i>Benjamin Donahue ; Sheldon Sigmon</i>	

SOFTWARE ENGINEERING: WHAT IS IT?	2502
<i>Ronnie Killough</i>	
VENUS ORIGINS EXPLORER (VOX) CONCEPT: A PROPOSED NEW FRONTIERS MISSION	2513
<i>Suzanne Smrekar ; Scott Hensley ; Mark S. Wallace ; Michael E. Lisano ; Murray R. Darrach ; Christophe Sotin ; David Lehman ; M. Darby Dyar ; Jörn Helbert</i>	
SCALING KINETIC INDUCTANCE DETECTORS (KIDS)	2531
<i>Peter W. A. Roming ; Michael E. Epperly ; Amanda Bayless</i>	
PERFORMANCE MODELING, DESIGN AND FPGA-BASED VALIDATION OF DIGITAL TRANSPARENT SATELLITE PROCESSORS	2542
<i>Vincenzo Sulli ; Giuseppe Marini ; Fortunato Santucci ; Domenico Giancristofaro ; Marco Faccio</i>	
SPACE-CAPABLE SOUNDING ROCKET DESIGN FOR COLLEGIATE TEAMS	2553
<i>Eric T. Pillai</i>	
EUROPA CLIPPER MISSION UPDATE: PRELIMINARY DESIGN WITH SELECTED INSTRUMENTS	2565
<i>Todd Bayer ; Molly Bittner ; Brent Buffington ; Jean-Francois Castet ; Gregory Dubos ; Maddalena Jackson ; Gene Lee ; Kari Lewis ; Jason Kastner ; Kathy Schimmels ; Ron Morillo ; Mana Salami ; Oleg Sindiy ; Brett Smith ; Karen Kirby ; Nori Laslo</i>	
PILOT INTERFACE CONSIDERATIONS USING HIGH LEVEL INFORMATION FUSION	2584
<i>Erik Blasch ; Jan Boril ; Vladimir Smrz ; Jan Leuchter</i>	
INCREASING FLIGHT SOFTWARE REUSE WITH OPENSATKIT	2592
<i>David McComas</i>	
AUTONOMOUS EXPLORATION AND SIMULTANEOUS OBJECT SEARCH USING AERIAL ROBOTS	2600
<i>Tung Dang ; Christos Papachristos ; Kostas Alexis</i>	
RECENT DEVELOPMENTS IN A LARGE INFLATABLE ANTENNA	2607
<i>Ira Steve Smith ; Ethan A. Chaffee ; Christopher Walker</i>	
PROJECT-DOMAIN SCIENCE TRACEABILITY AND ALIGNMENT FRAMEWORK (P-STAF): ANALYSIS OF A PAYLOAD ARCHITECTURE	2615
<i>Laura Jones-Wilson ; Sara Susca ; Kirk Reinholtz</i>	
MARS 2020 SURFACE MISSION MODELING LANDING SITE THERMAL ENVIRONMENTS	2630
<i>Travis L. Wagner ; Robert D. Lange</i>	
ACCELERATION FEEDBACK CONTROL FOR FIXED-WING SUAS	2638
<i>Angela Maio ; Badri Ranganathan ; J. Sean Humbert ; Gregory Gremillion ; William Nothwang</i>	
POWER ALLOCATION FOR SHARED TRANSPONDERS: A STATISTICAL OPTIMAL CONTROL PARADIGM	2649
<i>Khanh D. Pham</i>	
TOOL SUITE TO SUPPORT MODEL BASED SYSTEMS ENGINEERING-ENABLED SYSTEM-OF-SYSTEMS ANALYSIS	2659
<i>Cesare Guariniello ; Zhemai Fang ; Navindran Davendralingam ; Karen Marais ; Daniel DeLaurentis</i>	
LOON SDN: APPLICABILITY TO NASA'S NEXT-GENERATION SPACE COMMUNICATIONS ARCHITECTURE	2675
<i>Brian Barritt ; Vint Cerf</i>	
DEVELOPMENT OF CCD CAMERA ELECTRONICS FOR SPACE SURVEILLANCE	2684
<i>Andrew Cunningham ; Benjamin Buck ; Kyle Bojanowski</i>	
AN EFFICIENT WIKIPEDIA-BASED APPROACH FOR BETTER UNDERSTANDING OF NATURAL LANGUAGE TEXT RELATED TO USER REQUIREMENTS	2692
<i>Danissa V. Rodriguez ; Doris L. Carver ; Anas Mahmoud</i>	
SENSITIVITY ANALYSIS OF MEASUREMENT OF MODULATION INDICES IN PHASE MODULATED SIGNALS	2708
<i>Srini H. Raghavan ; Michelle M. Ardeshiri</i>	
FREQUENCY-DEPENDENT REJECTION, SPECTRAL SEPARATION COEFFICIENT, AND INTERFERENCE ANALYSIS	2716
<i>Srini H. Raghavan ; Hubert Chew</i>	
CONDITIONAL AND UNCONDITIONAL SAFETY PERFORMANCE FORECASTS FOR AVIATION PREDICTIVE RISK MANAGEMENT	2726
<i>Andrej Lališ ; Vladimír Socha ; Jakub Kraus ; Ivan Nagy ; Antonio Licu</i>	
NETWORK PERFORMANCE ANALYSIS FOR CBM IMPLEMENTATION BASED ON OSA-CBM FRAMEWORK	2734
<i>Rajkumar Choudhary ; Suresh Perinpanayagam ; Hongmei He</i>	
JOINT SPARSITY BASED HETEROGENEOUS DATA-LEVEL FUSION FOR MULTI-TARGET DISCOVERY	2740
<i>Ruixin Niu ; Peter Zulch ; Marcello Distasio ; Erik Blasch ; Genshe Chen ; Dan Shen ; Zhonghai Wang ; Jingyang Lu</i>	
OPTICAL CDMA FOR A CONSTELLATION OF CUBESATS	2748
<i>Darius Divsalar ; Matthew Thill ; David J. Israel ; Sam Dolinar ; Matthew Shaw ; Michael Peng</i>	
TWO-WAY RANGING AND DOPPLER FOR MULTIPLE ORBITING SPACECRAFT AT MARS	2759
<i>Kar-Ming Cheung ; Darius Divsalar ; Scott Bryant</i>	
PROPOSAL FOR A LIGHT SOLAR SAIL STRUCTURE AND ITS DEPLOYMENT	2775
<i>Rinto Roy ; K. Kurien Issac</i>	
MANAGED INTELLIGENT DECONFLICTION AND SCHEDULING FOR SATELLITE COMMUNICATION	2791
<i>Richard Stottler ; Robert Richards</i>	
SPACE LAUNCH SYSTEM AND SOLAR ELECTRIC PROPULSION: COMPARING PAYLOAD TO EARTH ESCAPE FROM DIFFERENT INITIAL EARTH ORBITS	2798
<i>Terry D. Haws ; Michael E. Fuller</i>	

TIMING ANALYSIS FOR UAS APPLICATION SOFTWARE	2805
<i>Charles Hartsell ; Gabor Karsai ; Michael Lowry</i>	
ACCESSING MARS RECURRING SLOPE LINEAE: MOBILITY SYSTEMS ANALYSIS	2815
<i>Gareth Meirion-Griffith ; Issa Nesnas ; Laura Kerber ; Robert Anderson ; Travis Brown ; Fred Calef ; Joel Burdick ; Melissa Tanner</i>	
PERFORMANCE OF AN EMERGING MB FILTER.....	2828
<i>Andrew Finelli ; Zachariah Sutton ; Qin Lu ; Peter Willett ; Yaakov Bar-Shalom ; Keith LeGrand ; Raymond Byrne</i>	
EXISTING STANDARDS AS THE FRAMEWORK TO QUALIFY ADDITIVE MANUFACTURING OF METALS	2837
<i>Michael O'Brien</i>	
DEVELOPMENT AND VALIDATION OF FIBERSCOPE SAMPLE IMAGING SYSTEM FOR IN-SITU SAMPLE ASSESSMENT	2847
<i>Risaku Toda ; Scott Moreland ; Mircea Badescu ; Paul Backes ; Vladimir Arutyunov ; Jacob Tims ; Valerie Scott ; Harish Manohara</i>	
EFFECTS OF TURNAROUND COMMAND (TAC) ON SGLS C/N0 AND SNR PERFORMANCE	2857
<i>Jack K. Kreng ; Michelle M. Ardeshiri ; David E. Ping</i>	
THIRD GENERATION COMMERCIAL SOLAR ELECTRIC PROPULSION: A FOUNDATION FOR SPACE EXPLORATION MISSIONS.....	2873
<i>Peter W. Lord ; Scott Tilley ; Dan M. Goebel ; J. Steven Snyder</i>	
DELIVERING HURRICANE SCIENCE: DATA PROCESSING REVIEW OF THE CYGNSS MISSION	2888
<i>Scott A. Miller ; Ronnie L. Killough ; Jillian Redfern ; William Wells ; Robert Klar</i>	
IMPROVING OPTICAL IMAGING OF DIM SSA TARGETS WITH SIMPLIFIED ADAPTIVE OPTICS SYSTEMS.....	2893
<i>Michael Werth ; Richard Holmes ; Michael Roggemann ; Jacob Lucas ; Michael Abercrombie ; Daniel Thompson</i>	
RADAR-BASED MARITIME COLLISION AVOIDANCE USING DYNAMIC WINDOW	2905
<i>Bjørn-Olav H. Eriksen ; Erik F. Wilthil ; Andreas L. Flåten ; Edmund F. Brekke ; Morten Breivik</i>	
LIVECHECKHSI: A HARDWARE/SOFTWARE CO-VERIFICATION TOOL FOR HYPERSPECTRAL IMAGING SYSTEMS WITH EMBEDDED SYSTEM-ON-CHIP INSTRUMENT AVIONICS.....	2914
<i>Irene Wang ; Didier Keymeulen ; Danny Tran ; Elliott Liggett ; Matthew Klimesh ; David Dolman ; Daniel Nunes ; Peter Sullivan ; Michael Bernas ; Michael Pham</i>	
CONSIDERATIONS FOR SPACE VEHICLE THERMAL VACUUM RETEST	2925
<i>Jeff B. Juranek ; John W. Welch</i>	
MISSION RISK POSTURE ASSESSMENT FOR SPACE VEHICLES	2941
<i>Gail Johnson-Roth ; Jeff Juranek</i>	
NANOSPACECRAFT FLEET FOR MULTI-ASTEROID TOURING WITH ELECTRIC SOLAR WIND SAILS	2949
<i>Andris Slavinskis ; Pekka Janhunen ; Petri Toivanen ; Karri Muinonen ; Antti Penttilä ; Mikael Granvik ; Tomas Kohout ; Maria Gritsevich ; Andris Slavinskis ; Mihkel Pajusalu ; Indrek Sünter ; Hendrik Ehrpais ; Janis Dalbins ; Iaroslav Iakubivskiy ; Tõnis Eenmäe ; Mihkel Pajusalu ; Erik Ilbis ; Hendrik Ehrpais ; Karri Muinonen ; Maria Gritsevich ; David Mauro ; Jan Stupl ; Andrew S. Rivkin ; William F. Botke</i>	
CASSINI'S GRAND FINALE: A MISSION PLANNING RETROSPECTIVE.....	2969
<i>Erick J. Sturm</i>	
QUANTIFYING OPERATIONAL CONSTRAINTS OF LOW-LATENCY TELEROBOTICS FOR PLANETARY SURFACE OPERATIONS	2975
<i>Benjamin J. Mellinkoff ; Matthew M. Spydell ; Wendy Bailey ; Jack O. Burns</i>	
MULTI-TASK FORMATION OF MULTI-SPACECRAFT VIA DISTRIBUTED HIERARCHICAL CONTROL	2985
<i>Zhanzhan Zhao ; Dongkun Han</i>	
APPLICABILITY OF FIXED-PRICE CONTRACTS FOR SUCCESSFUL COST CONTROL.....	2993
<i>Martha Callaway ; Susan Hastings ; Allison Moeller</i>	
ROBOTIC INFRASTRUCTURE FOR MARS OUTPOST WATER SUPPLY.....	3009
<i>Brian H. Wilcox ; A. Scott Howe</i>	
IMPROVING CALIBRATION AND ALIGNMENT OBSERVABILITY FOR STAR TRACKERS	3026
<i>John Enright ; Ilija Jovanovic</i>	
TESTING AN IMPROVED GAIN EQUALIZATION NON-UNIFORMITY CORRECTION ALGORITHM.....	3036
<i>McKenna R. Lovejoy ; Mark A. Wickert</i>	
PERFORMANCE EVALUATION OF FADING ESTIMATION TECHNIQUES OVER Q/V BAND SATELLITE LINKS.....	3044
<i>Mauro De Sanctis ; Tommaso Rossi ; Marina Ruggieri ; Craig Hibberd ; Cristina Togni ; Giuseppe Codispoti ; Giorgia Parca</i>	
WEARABLE SENSOR SUIT SYSTEM FOR QUANTIFYING HUMAN-SPACESUIT INTERACTIONS.....	3050
<i>Young-Young Shen ; Abhishektha Boppana ; Katya Arquilla ; Allison P. Anderson</i>	
ASSESSMENT OF POTENTIAL MARS RELAY NETWORK ENHANCEMENTS	3063
<i>Charles D. Edwards ; Roy Gladden ; Charles H. Lee ; Daniel Wenkert</i>	
IMPLEMENTATION AND TESTING OF A LOW-OVERHEAD NETWORK SYNCHRONIZATION PROTOCOL	3071
<i>Daniel R. Kowalski ; Timothy M. Christman ; Andrew G. Klein ; Mitchell W. S. Overdick ; Joseph E. Canfield ; D. Richard Brown</i>	
RAISING AWARENESS ABOUT OPEN SOURCE LICENSING AT THE GERMAN AEROSPACE CENTER	3079
<i>Andreas Schreiber ; Carina Haupt</i>	
DESIGN AND EFFICIENT IMPLEMENTATION OF CENSORED CELL AVERAGING CFAR FOR NON-HOMOGENEOUS BACKGROUND.....	3088
<i>R. S. Narasimhan ; A. Vengadarajan ; K. R. Ramakrishnan</i>	
IMPROVED FILTERING OF SOURCE PLANE TILTS FOR OPTICAL PROPAGATION SIMULATIONS	3100
<i>Jack E. McCrae ; Santasri R. Bose-Pillai ; Steven T. Fiorino ; Milo Hyde</i>	

ANALYSIS OF LIQUID FUEL SLOSHING ON FREE-FLOATING ROBOT DYNAMICS UNDER LOW-GRAVITY CONDITION	3106
<i>Wolfgang Rackl ; Jens Gerstmann ; Roberto Lampariello</i>	
EUROPA ORBITER SPACECRAFT TO LANDER FRONTIER RADIO RELAY COMMUNICATIONS	3118
<i>Matthew P. Angert ; Joseph R. Hennawy ; Norman H. Adams ; Colin Z. Sheldon</i>	
TOWARDS RESILIENT SPACEFLIGHT SYSTEMS WITH VIRTUALIZATION	3129
<i>Daniel Sabogal ; Alan D. George</i>	
CACHE FAULT INJECTION WITH DRSEUS	3137
<i>Edward Carlisle ; Alan D. George</i>	
HIGH TEMPERATURE UHF SSVD™ OSCILLATORS AND POWER AMPLIFIERS	3148
<i>L. P. Sadwick ; R. J. Hwu ; D. Kress</i>	
LEAN SATELLITE DESIGN FOR AMATEUR COMMUNICATIONS PAYLOAD IN THE ESA ESEO MISSION	3154
<i>J. Holtstiege ; C. P. Bridges</i>	
RESEARCH ON MULTI-PLATFORMS PASSIVE LOCATION FOR MULTI-TARGETS	3162
<i>Fei Deng</i>	
PREDICTION OF SATELLITE EDR TAXONOMY FROM TLE DATA AND SIMPLIFIED ATMOSPHERIC DENSITY MODEL	3172
<i>Xinrong Tan ; Junling Wang ; Ran Bi</i>	
EVALUATION OF COMMERCIAL-OFF-THE-SHELF (COTS) ELECTRONICS FOR EXTREME COLD ENVIRONMENTS	3179
<i>Miryeong Song ; Jean Y. Yang-Scharlotta ; Mohammad Ashtijou ; Mohammad Mojarradi</i>	
VERIFICATION & VALIDATION ON OCO-3: A CASE STUDY OF V&V FOR ISS MISSIONS	3190
<i>Benjamin Solish ; Lauren White</i>	
MONOCULAR VISUAL POSE ESTIMATION VIA ONLINE SAMPLING FOR MARS SAMPLE-TUBE PICKUP	3195
<i>Bhoram Lee ; Renaud Detry ; Jasmine Moreno ; Daniel D. Lee ; Eric Kulczykcki</i>	
A STATISTICAL APPROACH TO PAYLOAD ENERGY MANAGEMENT FOR NASA'S EUROPA CLIPPER MISSION	3203
<i>Bogdan V. Oaida ; Kari Lewis ; Eric Ferguson ; John Day ; Kelli McCoy</i>	
PATTERN METRICS FOR GROUPS OF TARGET TRACKS	3215
<i>Darin Dunham ; Gregory Norgard ; John D. Glass ; Evan Everett ; Dale Blair</i>	
TIME DEPENDENT FINITE DIFFERENCE MODELING OF OUTGASSING OF ASTEROIDS VIA BULK HEATING	3226
<i>Joel C. Sercel ; Mark A. Crawford ; Christopher Dreyer ; Egbocho Unobe ; Robert Jedicke ; Daniel Britt ; Leslie S. Gertsch</i>	
STEPPING STONES: ECONOMIC ANALYSIS OF SPACE TRANSPORTATION SUPPLIED FROM NEO RESOURCES	3240
<i>Joel C. Sercel ; Craig E. Peterson ; James R. French ; Anthony Longman ; Stanley G. Love ; Robert Shishko</i>	
LAICANSAT-5: A MISSION FOR RECORDING THE TOTAL SOLAR ECLIPSE FROM THE STRATOSPHERE	3260
<i>Renato Alves Borges ; Lorena Tameirão de Moura Corrêa ; Stephanie Cardoso Guimarães ; Andrea Cristina dos Santos ; Simone Battistini ; Chantal Cappelletti</i>	
ADVANCED MODELING AND TRAJECTORY OPTIMIZATION FRAMEWORK FOR REUSABLE LAUNCH VEHICLES	3267
<i>Lâle Evrim Briese ; Klaus Schnepfer ; B. Paul Acquatella</i>	
CARRIER ACQUISITION AND TRACKING FOR EUROPA RELAY COMMUNICATIONS	3285
<i>Justin D. Bradfield ; Adam V. Crifasi ; Norman H. Adams</i>	
EUROPA LANDER RADIO CROSSBAND RELAY HARDWARE PROTOTYPE	3291
<i>Justin R. Dennison ; Matthew P. Angert</i>	
MICROWAVE AND MILLIMETER WAVE SOLID STATE POWER AMPLIFIERS FOR FUTURE SPACE-BASED COMMUNICATIONS AND RADARS	3300
<i>Naresh Deo</i>	
ADVANCED UPPER STAGE ENERGETIC PROPELLANTS	3307
<i>Pallavi Gajjar ; Vinayak Malhotra</i>	
FORCE SENSORLESS IMPEDANCE CONTROL FOR A SPACE ROBOT TO CAPTURE A SATELLITE FOR ON-ORBIT SERVICING	3319
<i>Angel Flores-Abad ; Manuel Nandayapa ; Miguel A. Garcia-Teran</i>	
OPTIMIZED MODEL-BASED DESIGN SPACE EXPLORATION OF DISTRIBUTED MULTI-ORBIT MULTI-PLATFORM EARTH OBSERVATION SPACECRAFT ARCHITECTURES	3326
<i>Carles Araguz ; David Llaveria ; Estefany Lancheros ; Elisenda Bou-Balust ; Adriano Camps ; Eduard Alarcón ; Ignasi Lluch ; Hripsime Matevosyan ; Alessandro Golkar ; Stefania Tonetti ; Stefania Cornara ; Judith Cote ; Stephane Pierotti ; Pedro Rodríguez ; Angel Alvaro ; Mateusz Sochacki ; Janusz Narkiewicz</i>	
DISTRIBUTED ESTIMATION OF MOVING TARGETS WITH UNKNOWN DYNAMICS	3342
<i>Jing Wang</i>	
GAUSSIAN MIXTURE MODELING FOR LONG RANGE RADAR WITH HIGHER REPRESENTATIONAL EFFICIENCY	3348
<i>Benjamin Davis ; W. Dale Blair</i>	
ROVING ON ICE: FIELD TESTING AN ICE SCREW END EFFECTOR AND SAMPLE COLLECTION TOOL	3360
<i>Aaron Curtis ; Matt Martone ; Aaron Parness</i>	

DRONE NET ARCHITECTURE FOR UAS TRAFFIC MANAGEMENT MULTI-MODAL SENSOR NETWORKING EXPERIMENTS	3377
<i>Sam Siewert ; Mehran Andalibi ; Stephen Bruder ; Jacopo Gentilini ; Jonathan Buchholz</i>	
OVERVIEW OF THE MARS 2020 PARACHUTE RISK REDUCTION ACTIVITY	3395
<i>Christopher L. Tanner ; Ian G. Clark ; Allen Chen</i>	
SEQUENTIAL MONTE CARLO ALGORITHM FOR SOURCE RELEASE ESTIMATION	3406
<i>Craig S. Agate ; Ben C. Juricek ; Max D. Flattery</i>	
CANDIDATE MECHANISMS AND FABRIC LAYUP MATERIALS FOR THE MARS SURFACE TUNNEL CONCEPT	3412
<i>Athul Pradeepkumar Girija ; Sarag J. Saikia ; Maxim de Jong</i>	
CROWDFUNDING FOR SATELLITE DEVELOPMENT: ESTCUBE-2 CASE	3423
<i>Katrina Kalnina ; Kadri Bussov ; Hendrik Ehrpais ; Triin Teppo ; Silvia-Kristin Kask ; Merili Jauk ; Andris Slavinskis ; Jouni Envall ; Hendrik Ehrpais ; Andris Slavinskis</i>	
INSIGHT: MISSION TO MARS	3437
<i>Tom Hoffman</i>	
A 3-PLAYER ZERO-SUM DIFFERENTIAL GAME	3447
<i>Roger Anderson ; Meir Pachter ; Robert Murphey</i>	
NEW NEO SEARCH TECHNOLOGY USING SMALL TELESCOPES AND FPGA	3453
<i>Toshifumi Yanagisawa ; Toshinori Ikenaga ; Yohei Sugimoto ; Kaname Kawatsu ; Makoto Yoshikawa ; Shin-ichiro Okumura ; Takashi Ito</i>	
MOBILE MANIPULATION FOR PLANETARY EXPLORATION	3459
<i>Peter Lehner ; Sebastian Brunner ; Andreas Dömel ; Heinrich Gmeiner ; Sebastian Riedel ; Bernhard Vodermayr ; Armin Wedler</i>	
REDUCING HUMAN RADIATION RISKS ON DEEP SPACE MISSIONS	3470
<i>Kathryn A. Worden-Buckner ; Jennifer L. Rhatigan ; Stephen Tackett ; Mark Rhoades</i>	
MULTIPLE-HYPOTHESIS AND GRAPH-BASED TRACKING FOR KINEMATIC AND IDENTITY FUSION	3489
<i>Stefano P. Coraluppi ; Craig A. Carthel ; Gregory D. Castañón ; Alan S. Willsky</i>	
FRAMEWORK FOR RELIABILITY GROWTH AND REWORK PROJECTIONS FOR LAUNCH VEHICLES DURING TESTING	3505
<i>Alicia Sudol ; Dimitri N. Mavris</i>	
STEADY-STATE TRACKING WITH FMCW RADARS	3520
<i>Michael McDonough ; W. Dale Blair</i>	
EFFECT OF TAIL-ROTOR TORQUE VARIATION ON VIBRATION AT HELICOPTER TAIL-ROTOR DRIVE-TRAIN	3527
<i>Michael R. Habib ; Mohammed A. Hassan ; Abdel M. Bayoumi</i>	
VELOCITY MATCHING COMPLIANT CONTROL FOR A SPACE ROBOT DURING CAPTURE OF A FREE-FLOATING TARGET	3535
<i>Pedro Rodríguez Pérez ; Marco De Stefano ; Roberto Lampariello</i>	
OPTICAL CARRIERS PHASE BASED HIGH-PRECISION RANGING AND RANGE RATE MEASUREMENTS IN COHERENT OPTICAL COMMUNICATION	3544
<i>Guangning Yang ; Jeffrey Chen ; Kenji Numata ; Michael Krainak ; Gregory Heckler ; Cheryl Gramling</i>	
A STUDY OF VARIOUS BEACON ANTENNAS FOR AN ORBITING SAMPLE CONTAINER OF A FUTURE MARS SAMPLE RETURN MISSION	3553
<i>Hungsheng Lin ; Parya Darshni ; Vahraz Jamnejad</i>	
FAILURE ANALYSIS AND PRODUCTS IN A MODEL-BASED ENVIRONMENT	3558
<i>Jean-Francois Castet ; Magdy Bareh ; Jeffery Nunes ; Shira Okon ; Larry Garner ; Emmy Chacko ; Michel Izzygon</i>	
UPSTREAM FUSION OF MULTIPLE SENSING MODALITIES USING MACHINE LEARNING AND TOPOLOGICAL ANALYSIS: AN INITIAL EXPLORATION	3571
<i>Denis Garagić ; Jacob Peskoe ; Fang Liu ; Michael S. Claffey ; Paul Bendich ; Jay Hineman ; Nathan Borggren ; John Harer ; Peter Zulch ; Bradley J. Rhodes</i>	
NEXT-GENERATION RADIOISOTOPE THERMOELECTRIC GENERATOR STUDY	3579
<i>Christopher S. R. Matthes ; David F. Woerner ; Terry J. Hendricks ; Jean-Pierre Fleurial ; Knut I. Oxnevad ; Chadwick D. Barklay ; June F. Zakrajsek</i>	
A SILICON MICRO DOSIMETER FOR HIGH-ALTITUDE MEASUREMENTS OF COSMIC RADIATION	3588
<i>James Rosenthal ; Bryan Hayes ; Christopher Mertens</i>	
INTEGRATED TELEMETRY ANALYSIS USING HUMAN EXPERT KNOWLEDGE AND THE LOGICAL ANALYSIS OF DATA	3595
<i>Mohamed Mahmoud Ibrahim ; Aymen Mahmoud Ahmed ; Haitham Elsayed Akah ; Mohamed Ibrahim Mohamed ; Soumaya Yacout</i>	
NOIRE STUDY REPORT: TOWARDS A LOW FREQUENCY RADIO INTERFEROMETER IN SPACE	3608
<i>Baptiste Ceconi ; Moustapha Dekkali ; Carine Briand ; Boris Segret ; Julien N. Girard ; André Laurens ; Alain Lamy ; David Valat ; Michel Delpech ; Mickael Bruno ; Patrick Gélard ; Martin Bucher ; Quentin Nonon ; Jean-Mathias Griefmeier ; Albert-Jan Boonstra ; Mark Bentum</i>	
CONSTELLATION OPTIMIZATION USING AN EVOLUTIONARY ALGORITHM WITH A VARIABLE-LENGTH CHROMOSOME	3627
<i>Nozomi Hitomi ; Daniel Selva</i>	
BREAK-THE-CHAIN TECHNOLOGY FOR POTENTIAL MARS SAMPLE RETURN	3639
<i>Robert Gershman ; Yoseph Bar-Cohen ; Morgan Hendry ; Moogega Stricker ; Danil Dobrynin ; Alexander Morrese</i>	
FLIGHT TEST SAFETY — THE U.S. NAVY APPROACH	3659
<i>Tom McAteer ; Chris Rice ; Christopher Gavin</i>	
MANNED-UNMANNED AIRCRAFT TEAMING	3666
<i>Mohammad H. Sadraey</i>	

A CASE STUDY IN ATTITUDE DETERMINATION AND CONTROL ON THE CASSINI MISSION TO SATURN	3678
<i>P. A. Trisha Jansma ; Allan Y. Lee ; Thomas A. Burk</i>	
INTERCOMPARISON OF LET SPECTRA MEASURED WITH TIMEPIX AND TEPIC IN REFERENCE RADIATION FIELD CERF	3699
<i>Ondřej Ploc ; Marek Sommer ; Martin Kákona ; Ján Kubančák ; Dagmar Peksová ; Lembit Silver ; Alexander Molokanov</i>	
CUBESAT NETWORKS: BALANCING POWER WITH SATELLITE-TO-GROUND DATA THROUGHPUT	3710
<i>Stephen Ennis ; Jonathan Dukes</i>	
ANALYSES OF WARRANTY LOSSES TO AVIONICS SUPPLIERS	3727
<i>Ahmed Raza ; Volodymyr Ulanskyi</i>	
EXPLORATION AND UTILIZATION OF ASTEROIDS AS INTERPLANETARY COMMUNICATION RELAYS	3738
<i>Himangshu Kalita ; Aaditya Ravindran ; Jekanthan Thangavelautham</i>	
MODULAR INFLATABLE SPACE STRUCTURES	3746
<i>Aman Chandra ; Jekanthan Thangavelautham ; Alessandra Babuscia</i>	
YOU SAY “PICOSAT”, I SAY “CUBESAT”: DEVELOPING A BETTER TAXONOMY FOR SECONDARY SPACECRAFT	3755
<i>Michael Swartwout</i>	
IN-FLIGHT ORBIT DETERMINATION FOR A DEEP SPACE CUBESAT	3772
<i>Boris Segret ; Daniel Hestroffer ; Gary Quinsac ; Marco Agnan ; Jordan Vannitsen ; Benoît Mosser</i>	
LENSELESS DIGITAL HOLOGRAPHIC MICROSCOPY AS A MEANS TO SEARCH FOR LIFE IN THE SOLAR SYSTEM	3784
<i>Eugene Serabyn ; Kurt Liewer ; Kent Wallace</i>	
A TOOL FOR ESTIMATING AVIATION ROUTE DOSES AND CUMULATIVE SPECTRA OF SECONDARY COSMIC RAYS IN THE ATMOSPHERE	3790
<i>Zi-Yi Yang ; An-Lun Li ; Rong-Jiun Sheu</i>	
CONTEXT CAMERAS FOR THE ORBITING CARBON OBSERVATORY 3 (OCO-3) INSTRUMENT	3796
<i>Colin McKinney ; Timothy Goodsall ; Michael Hoenk ; Jacob Shelton ; Keith Runney ; Christophe Basset ; Muthu Jeganathan ; Douglas Moore</i>	
RADAR DETECTION RANGE IN HIGHER SPATIAL DIMENSIONS	3811
<i>Patrick Bidigare ; Daniel W. Bliss ; Bill Correll ; Cynthia Keeler</i>	
TRACTION CONTROL DESIGN AND INTEGRATION ONBOARD THE MARS SCIENCE LABORATORY CURIOSITY ROVER	3821
<i>Olivier Toupet ; Jeffrey Biesiadecki ; Arturo Rankin ; Amanda Steffy ; Gareth Meirion-Griffith ; Dan Levine ; Maximilian Schadegg ; Mark Maimone</i>	
MULTIRESOLUTION PARTITIONED GAUSSIAN PROCESS REGRESSION FOR TERRAIN ESTIMATION	3841
<i>Clark Zhang ; Masahiro Ono ; Ravi Lanka</i>	
AN INTEGRATED QUAD-BAND RF FRONT END FOR HIGH-RELIABILITY SMALL SATELLITE MISSIONS	3849
<i>Michael O'Neill ; Joshua Ramirez</i>	
SLOW AND STEADY WON'T WIN THIS RACE: BEYOND COMPLIANCE-BASED MISSION ASSURANCE FOR SMALL SATELLITES	3858
<i>Christopher Jackson</i>	
RADIOISOTOPE POWER SOURCE DOSE ESTIMATION TOOL (RPS-DET)	3869
<i>Michael B. R. Smith</i>	
AUTONOMOUS ORBIT DETERMINATION USING PULSARS AND INTER-SATELLITE RANGING FOR MARS ORBITERS	3887
<i>Shuo Wang ; Pingyuan Cui</i>	
FEMTOSECOND IONIZATION SOURCE FOR ULTRAHIGH RESOLUTION TIME-OF-FLIGHT MASS SPECTROMETRY	3894
<i>W. Ronny Huang ; Xiang Li ; Anthony W. Yu ; William A. Brinckerhoff ; Molly Fahey</i>	
THE ORION SPACECRAFT AS A KEY ELEMENT IN A DEEP SPACE GATEWAY	3902
<i>Kerry Timmons ; Kathleen Coderre ; William D. Pratt ; Timothy Cichan</i>	
THE INTELLIGENT ROBOTICS SYSTEM ARCHITECTURE APPLIED TO ROBOTICS TESTBEDS AND RESEARCH PLATFORMS	3914
<i>Paul Backes ; Kyle Edelberg ; Peter Vieira ; Won Kim ; Alex Brinkman ; Sawyer Brooks ; Sisir Karumanchi ; Gene Merewether ; Wyatt Ubellacker</i>	
NEW SOLAR ARRAY TECHNOLOGY PROVIDES 25% MORE POWER FIRST FLIGHT CONFIRMS ADVANTAGES	3922
<i>Brian Anthony ; Bryan Helgesen</i>	
RADAR MOON BOUNCE OPERATIONS PROCESS	3928
<i>David LaVallee ; Gerald Patterson ; Franklin S. Turner ; Ray Espiritu</i>	
POLYCHROMATIC SPECKLE MITIGATION AT SURFACE DISCONTINUITIES	3937
<i>Noah R. Van Zandt ; Mark F. Spencer ; Jack E. McCrae ; Steven T. Fiorino</i>	
SUSTAINING PICA FOR FUTURE NASA ROBOTIC SCIENCE MISSIONS INCLUDING NF-4 AND DISCOVERY	3945
<i>Mairead Stackpoole ; Ethiraj Venkatapathy ; Steven Violette</i>	
ARCHITECTURAL OPTIONS AND OPTIMIZATION OF SUBORBITAL SPACE TOURISM VEHICLES	3951
<i>Markus Guerster ; Edward F. Crawley</i>	

PERFORMANCE EVALUATION OF THE FAST-MOVING NEO DETECTION MISSION	3969
<i>Yohei Sugimoto ; Toshifumi Yanagisawa ; Toshinori Ikenaga ; Makoto Yoshikawa</i>	
COGNITIVE DESIGN FRAMEWORK FOR MULTIDISCIPLINARY DEVELOPMENT OF HIGH- INTEGRITY AVIONICS SYSTEMS	3977
<i>Carlos C. Insaurralde</i>	
PRELIMINARY ASTEROID DEFLECTION MISSION DESIGN FOR 2017 PDC USING NEUTRAL BEAM PROPULSION	3986
<i>Anthony J. DeCicco ; Christine M. Hartzell ; Robert B. Adams ; Kurt A. Polzin</i>	
STIMULATING A CULTURE OF INNOVATION AT THE AEROSPACE CORPORATION	3996
<i>Rob Sherwood ; Randy Villahermosa ; Lael Woods ; Andre Dounitt ; Brad Hirasuna ; Paul Anderson ; Erica Deionno ; Brandie Rhodes ; Mackenzie Puig-Hall</i>	
POLARIZATION-INDEPENDENT DIFFRACTIVE WAVEPLATE OPTICS	4004
<i>D. Roberts ; S. Kaim ; N. Tabiryan ; M. McConney ; T. Bunning</i>	
LEARNING-BASED CONTROL SCHEME TO DEPLOY MODULAR SPACE STRUCTURES	4015
<i>Federica Angeletti ; Paolo Gasbarri ; Giovanni Palmerini ; Marco Sabatini</i>	
CASE STUDY IN UTILIZING THE INTERNET OF THINGS AS A PHM ARCHITECTURE FOR AEROSPACE APPLICATIONS	4030
<i>H. Heath Dewey ; Derek R. DeVries</i>	
POTENTIAL ADVANTAGES OF CONDUCTING SHORT DURATION VISITS TO THE MARTIAN SURFACE	4043
<i>Chel Stromgren ; Felipe Escobar ; William Cirillo ; Raymond G. Merrill ; Kandyce Goodliff</i>	
RP-CHECK: AN ARCHITECTURE FOR SPACEFLIGHT COMMAND SEQUENCE VALIDATION	4057
<i>Mark W. Maimone ; Scott Maxwell ; Jeffrey J. Biesiadecki ; Stirling Algermissen</i>	
AN ANALYTICAL MARS ENTRY GUIDANCE METHOD FOR HIGHER DEPLOYMENT ALTITUDE CONSIDERING UNCERTAINTIES	4067
<i>Zeduan Zhao ; Zhengshi Yu ; Pingyuan Cui</i>	
A LOW-COST INDOOR TESTBED FOR MULTIROBOT ADAPTIVE NAVIGATION RESEARCH	4076
<i>Scot Tomer ; Christopher Kitts ; Michael Neumann ; Robert McDonald ; Samuel Bertram ; Ryan Cooper ; Marton Demeter ; Erin Guthrie ; Ethan Head ; Archana Kashikar ; Jonathan Kitts ; Matthew London ; Anne Mahacek ; Richard Rasay ; Danop Rajabhandharaks ; Ting-yu Yeh</i>	
FLIGHT ELECTRONICS OF GC-MASS SPECTROMETER FOR INVESTIGATION OF VOLATILES IN THE LUNAR REGOLITH	4088
<i>Rico G. Fausch ; Peter Wurz ; Marek Tulej ; Jürg Jost ; Pascal Gubler ; Mario Gruber ; Davide Lasi ; Claudio Zimmermann ; Thomas Gerber</i>	
GEOMETRIC CROSS-MODAL COMPARISON OF HETEROGENEOUS SENSOR DATA	4100
<i>Christopher J. Tralie ; Abraham Smith ; Nathan Borggren ; Jay Hineman ; Paul Bendich ; Peter Zulch ; John Harer</i>	
ELLIPTICAL TRAJECTORY BASED THREE-DIMENSIONAL IMPACT ANGLE CONTROL GUIDANCE	4110
<i>Jaebong Song ; Han-Lim Choi</i>	
APERTURE SYNTHESIS FROM FREE-FLYING COLLECTORS WITHOUT ACCURATE METROLOGY	4119
<i>Zachary K. Baker ; Nicholas Dallmann ; William Junor</i>	
A MOMENTUM-BASED INDICATOR FOR PREDICTING THE PEAK OPENING LOAD OF SUPERSONIC PARACHUTES	4127
<i>David W. Way</i>	
ENGAGING WOMEN TO STUDY STEM THROUGH EMPOWERMENT: A CASE FROM THE UNITED ARAB EMIRATES (UAE)	4136
<i>Heyam A. Alblooshi ; Lisa May</i>	
A TERRAIN SLOPE ESTIMATION SCHEME USING INFRARED CAMERA FOR PLANETARY EXPLORATION ROVERS	4141
<i>Satoshi Watanabe ; Kyohei Otsu ; Masatsugu Otsuki ; Takashi Kubota ; Gakuto Masuyama ; Kazunori Umeda</i>	
SPACECRAFT MISSION AGENT FOR AUTONOMOUS ROBUST TASK EXECUTION	4149
<i>Antony Gillette ; Brendan O'Connor ; Christopher Wilson ; Alan George</i>	
AUTONOMOUS NAVIGATION & MAPPING OF SMALL BODIES	4157
<i>Vincenzo Pesce ; Ali-akbar Agha-mohammadi ; Michèle Lavagna</i>	
TOPOLOGY CONTROL IN AERIAL MULTI-BEAM DIRECTIONAL NETWORKS	4167
<i>Brian Proulx ; Jennifer Madiedo ; Nathaniel M. Jones ; Greg Kuperman</i>	
DIVERT CAPABILITY ANALYSIS AND SUBSEQUENT GUIDANCE DESIGN FOR MARS LANDING	4174
<i>Tong Qin ; Shengying Zhu ; Pingyuan Cui ; Enjie Luan</i>	
CONCEPTUAL IDEAS FOR RADIO TELESCOPE ON THE FAR SIDE OF THE MOON	4189
<i>Saptarshi Bandyopadhyay ; Joseph Lazio ; Adrian Stoica ; Paul Goldsmith ; Brad Blair ; Marco Quadrelli ; Jean-Pierre de la Croix ; Amir Rahmani</i>	
FULL-SCALE DYNAMIC TOUCH-AND-GO VALIDATION OF THE BIBLADE COMET SURFACE SAMPLE CHAIN	4199
<i>Scott Jared Moreland ; Paul G. Backes ; Mircea Badescu ; Dario Riccobono ; Marco Mongelli ; Peter Vieira ; Alex Brinkman ; Fredrick Rehmark ; Robert Wei ; Grayson Adams ; Risaku Toda ; William Cervantes ; Kris Zacny</i>	
A RULE-BASED TOOL FOR SCIENCE TRACEABILITY OF MARS EXPLORATION MISSION ARCHITECTURES	4208
<i>Samalis Santini De León ; Daniel Selva</i>	
DISCUSSING THE 2015 NASA TECHNOLOGY ROADMAP: STETHOSCOPE OR AUTONOMOUS HEALTHCARE TECHNOLOGY?	4223
<i>Olha Kevorkova ; Alexandre Popov</i>	

MULTI MODAL POSE FUSION FOR MONOCULAR FLIGHT WITH UNMANNED AERIAL VEHICLES	4234
<i>Arbaaz Khan ; Martial Hebert</i>	
LEARNING SAFE RECOVERY TRAJECTORIES WITH DEEP NEURAL NETWORKS FOR UNMANNED AERIAL VEHICLES	4241
<i>Arbaaz Khan ; Martial Hebert</i>	
PERFORMANCE TESTING OF THE EU & QU MMRTG	4250
<i>Chadwick Barklay ; B. Allen Tolsen</i>	
PROJECT ZEPHYRUS: DEVELOPING A RAPIDLY REUSABLE HIGH-ALTITUDE FLIGHT TEST PLATFORM	4256
<i>Hunter Hall ; Benjamin Donitz ; Leon Kim ; Divya Srivastava ; Keenan Albee ; Seth Eisner ; Dakota Pierce ; Yvonne Villapudua ; Adrian Stoica</i>	
FINITE-TIME ADAPTIVE FAULT-TOLERANT ATTITUDE CONTROL FOR RIGID SPACECRAFT	4273
<i>Yunhai Geng ; Jian Hu ; Yuliang Bai ; Xiaogang Wang ; Naigang Cui</i>	
IMPROVING A MEMS-BASED SENSOR FOR HELICOPTER GEARBOX AND ROLLING STOCK APPLICATIONS	4282
<i>James P. Hofmeister ; Wyatt Pena ; Min Hudgins ; Robert Wagoner ; Matthew Nielsen</i>	
SPACE MISSION HIBERNATION MODE DESIGN: LESSONS LEARNED FROM ROSETTA AND OTHER PATHFINDING MISSIONS USING HIBERNATION	4291
<i>John L. West ; Andrea Accomazzo ; Arthur B. Chmielewski ; Paolo Ferri</i>	
OPERATIONAL DEPENDENCY ANALYSIS OF A HUMAN MARS ARCHITECTURE BASED ON THE SODA METHODOLOGY	4305
<i>Steven Zusack ; Cesare Guariniello ; Daniel DeLaurentis</i>	
REMORA CUBESAT FOR LARGE DEBRIS RENDEZVOUS, ATTACHMENT, TRACKING, AND COLLISION AVOIDANCE	4317
<i>Ryan McCormick ; Alex Austin ; Kristopher Wehage ; Spencer Backus ; Robert Miller ; James Leith ; Ben Bradley ; Parker Durham ; Rudranarayan Mukherjee</i>	
MONITORING HUMAN NEUROMUSCULOSKELETAL SYSTEM PERFORMANCE DURING SPACESUIT GLOVE USE: A PILOT STUDY	4330
<i>Kaci E. Madden ; Dragan Djurdjanovic ; Ashish D. Deshpande</i>	
TESTBEDS AND TECHNOLOGIES FOR POTENTIAL MARS ORBITAL SAMPLE CAPTURE AND MANIPULATION	4340
<i>Rudranarayan Mukherjee ; Neil Abcouwer ; Alex Brinkman ; Brendan Chamberlain-Simon ; Marco Dolci ; Blair Emanuel ; Johannes Gross ; Lewis Jones ; Junggon Kim ; John Mayo ; Preston Ohta ; SaiAdiVishnu Sanigepalli ; Vivian Shen ; Russell Smith ; Wyatt Ubellacker ; Kristopher Wehage</i>	
HABEX SPACE TELESCOPE GUIDING SYSTEMS	4350
<i>Stefan Martin ; Michael Bottom ; Joel Nissen ; Stuart Shaklan</i>	
A BIO-SIGNAL COMPUTING PLATFORM FOR REAL-TIME ONLINE HEALTH ANALYTICS FOR MANNED SPACE MISSIONS	4360
<i>J. Mikael Eklund ; Nazrul Khan</i>	
TIP-OR ROLLOVER PROTECTION MECHANISMS FOR PLANETARY ROVERS ENABLING EXPLORATION OF HIGH-RISK SITES	4368
<i>Wolfgang Fink ; Alexander J. -W. Brooks ; Victor R. Baker</i>	
APPROACHES TO DISTINGUISHING BACTERIA FROM MINERAL PARTICLES IN MICROSCOPIC IMAGING IEEE AEROSPACE CONFERENCE	4379
<i>Christian Lindensmith ; Manuel Bedrossian ; Jay Nadeau</i>	
RELIABILITY CENTERED ADDITIVE MANUFACTURING COMPUTATIONAL DESIGN FRAMEWORK	4388
<i>Patrick Harris ; Bernard Laskowski ; Edward Reutzell ; James C. Earthman ; Andrew J. Hess</i>	
FLIGHT PLASMA DIAGNOSTICS FOR HIGH-POWER, SOLAR-ELECTRIC DEEP-SPACE SPACECRAFT	4398
<i>Lee Johnson ; Maria De Soria-Santacruz Pich ; David Conroy ; Robert Lobbia ; Wensheng Huang ; Maria Choi ; Michael J. Sekerak</i>	
FORMATION OPERATIONS AND NAVIGATION CONCEPT OVERVIEW FOR THE IRASSI SPACE INTERFEROMETER	4414
<i>Luisa Buinhas ; Mathias Philips-Blum ; Kathrin Frankl ; Thomas Pany ; Bernd Eisfeller ; Roger Förstner</i>	
USING MODEL BASED SYSTEMS ENGINEERING STRUCTURES FOR ONBOARD SPACECRAFT ELECTRONICS	4430
<i>Joseph Marshall ; Richard Ferguson ; Lisa Assadzadeh</i>	
SPRITE: A SATURN PROBE NEW FRONTIERS MISSION	4439
<i>Don Banfield ; Amy Simon ; Rolf Danner ; David H. Atkinson ; Kim R. Reh</i>	
VALIDATION OF GROUND TECHNOLOGIES FOR FUTURE Q/V BAND SATELLITE SYSTEMS: THE QV — LIFT PROJECT	4453
<i>Giuseppe Codispoti ; Giorgia Parca ; Mauro De Sanctis ; Marina Ruggieri ; Tommaso Rossi ; Giandomenico Amendola ; Carlo Riva Lorenzo Luini ; Fabrizio Massaro</i>	
HIGH THROUGHPUT GPU LDPC ENCODER AND DECODER FOR DVB-S2	4461
<i>David Kun</i>	
THE INFLUENCE OF WIND ON ANISOTROPY IN OPTICAL TURBULENCE	4470
<i>Jack E. McCrae ; Connor E. Murphy ; Santasri R. Bose-Pillai ; Christopher A. Rice ; Steven T. Fiorino</i>	
BRINGING NASA TECHNOLOGY DOWN TO EARTH	4478
<i>Daniel P. Lockney ; Terry L. Taylor</i>	
Author Index	