

**2022 United States National
Committee of URSI National
Radio Science Meeting
(USNC-URSI NRSM 2022)**

**Boulder, Colorado, USA
4 – 8 January 2022**



IEEE Catalog Number: CFP22USN-POD
ISBN: 978-1-6654-6501-4

**Copyright © 2022, U.S. National Committee for the International Union of Radio
Science (USNC-URSI)
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:	CFP22USN-POD
ISBN (Print-On-Demand):	978-1-6654-6501-4
ISBN (Online):	978-1-946815-15-6

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

B1: ANTENNA THEORY, DESIGN, AND MEASUREMENTS

B1.1: INVERSE-DESIGN OF ADVANCED SHORT BACKFIRE ANTENNAS WITH 100% APERTURE EFFICIENCY 1

Colin Mussman, Daniel Binion, Pingjuan Werner, Douglas Werner, Penn State, United States; Erik Lier, Thomas Hand, Lockheed Martin, United States

B1.2: AN ULTRA-WIDEBAND PARALLEL PLATE SINUOUS ANTENNA FOR DIRECTION FINDING APPLICATIONS 3

Alan Salari, Omid Manoochehri, Danilo Erricolo, University of Illinois Chicago, United States

B1.3: A DUAL-BAND PATCH ANTENNA EMPLOYING A FOLDED PROBE FEED FOR NON-LINEAR RADAR APPLICATIONS 5

Alex Bouvy, Nader Behdad, University of Wisconsin-Madison, United States

B1.6: RADIATION PATTERN RECONFIGURABLE ANTENNA USING A PROXIMITY-COUPLED SUNFLOWER-SHAPED PATCH 9

Hareth Abdalkarim, Brad Jackson, California State University, Northridge, United States

B1.8: MECHANICALLY CONFIGURABLE, CAPACITIVELY COUPLED, DISK LOADED MONOPOLE DRIVEN CORNER REFLECTOR 12

Jonathan Lundquist, Lauren Linkous, Erdem Topsakal, Virginia Commonwealth University, United States

G1: NEW APPLICATIONS OF SMALLSAT SENSORS

G1.1: ENABLING LOW-POWER RADIOMETERS WITH MACHINE LEARNING CALIBRATION 24

John Bradburn, Mustafa Aksoy, University at Albany, State University of New York, United States; Paul Racette, Tim McClanahan, NASA Goddard Space Flight Center, United States; Sheri Loftin, ADNET Systems, Inc., United States

G1.2: ACCURACY: ADAPTIVE CALIBRATION OF CUBESAT RADIOMETER CONSTELLATIONS 26

John Bradburn, Mustafa Aksoy, University at Albany, State University of New York, United States

A1: ANTENNAS

A1.2: A COMPACT AND SIMPLE PROTOTYPE CPW-FED DUAL BAND ANTENNA FOR ISM, WI-FI, AND WLAN APPLICATIONS 30

Syed Muhammad Rizvi Jarchavi, Beijing Jiaotong University, China; Musa Hussain, Bahria University Islamabad Campus, Pakistan; Syed Hamza Hassan Gardezi, University of Management and Technology, Pakistan; Mohammad Alibakhshikenari, Universidad Carlos III de Madrid, Spain; Francisco Falcone, Public University of Navarre (UPNA), Spain; Ernesto Limiti, University of Rome Tor Vergata, Italy

A1.4: A HIGH-POWER UHF ANTENNA WITH LOGARITHMIC SPIRAL STRUCTURE 33

Omid Manoochehri, Alan Salari, University of Illinois at Chicago, United States

B2: NUMERICAL METHODS

B2.1: TIME-DOMAIN FIELD SOLUTION FOR A POINT SOURCE NEAR A COMPLEX TRANSFORMATION OPTICS FLAT LENS 36

Hayrettin Odabasi, Eskisehir Osmangazi University, Turkey; Fernando Teixeira, The Ohio State University, United States

B2.4: SOLVING THE FULL WAVEFORM ELECTROMAGNETIC INVERSION ENHANCED BY EFFICIENT PROGRESSIVE TRANSFER LEARNING 40

Yuchen Jin, Yuan Zi, Wenyi Hu, Yanyan Hu, Xuqing Wu, Jiefu Chen, University of Houston, United States

B3: COMPLEX EM AND META STRUCTURES

B3.1: TAYLOR-LIKE SUPER-DIRECTIVE PATTERNS ENABLE ADVANCED SUPER-OSCILLATORY IMAGING 52

Haitang Yang, George Eleftheriades, University of Toronto, Canada

B3.3: HIGHLY SENSITIVE EXCEPTIONAL DEGENERACY IN COUPLED TRANSMISSION LINES WITH BALANCED GAIN AND LOSS 55

Alireza Nikzamid, Hamidreza Kazemi, Tarek Mealy, Filippo Capolino, University of California, Irvine, United States

B3.4: CIRCUIT MODELS FOR ELECTRICALLY-SMALL TIME-VARYING SPHERICAL SCATTERERS..... 57

Zachary Fritts, Anthony Grbic, University of Michigan, United States

D1: ELECTRONICS AND PHOTONICS

D1.4: ENHANCED SENSITIVITY OF GYRATOR-BASED CIRCUIT AT EXCEPTIONAL POINT COMPOSED OF UNSTABLE RESONATORS 66

Kasra Rouhi, Alireza Nikzamid, Alexander Figotin, Filippo Capolino, University of California, Irvine, United States

A2: MATERIALS

A2.1: AN INVESTIGATION ON USING LIGHTWEIGHTED CARBON- EPOXY COMPOSITES AS MICROSTRIP PATCH ANTENNA SUBSTRATE 74

Zahra Nozarjoubari, University of Maryland, College Park, United States

A2.2: ON THE FAR-FIELD CHARACTERISTICS OF A 3D-PRINTED ANTENNA USING WOOD-BASED PLA AND CONDUCTIVE SILVER NANOPARTICLE INK 76

Milad Mirzaee, Yanghyo Kim, Stevens Institute of Technology, United States

A2.3: TOWARD FULLY BIODEGRADABLE AND RENEWABLE ANTENNAS USING 3D PRINTING TECHNOLOGY 78

Milad Mirzaee, Yanghyo Kim, Stevens Institute of Technology, United States

A2.4: MICROWAVE CHARACTERIZATION OF NINJAFLEX FILAMENT USING PERFORMANCE PROBE FOR DEVELOPING 3D-PRINTED WEARABLE ANTENNAS 80

Milad Mirzaee, Yanghyo Kim, Stevens Institute of Technology, United States

A2.5: A 3D-PRINTED MICROWAVE PASSIVE SENSOR USING FULLY BIODEGRADABLE AND RENEWABLE MATERIALS 82

Milad Mirzaee, Yanghyo Kim, Stevens Institute of Technology, United States

B4: 5G AND MILLIMETER WAVE ANTENNAS AND APPLICATIONS

B4.1: A COMPACT UNIT-CELL DESIGN FOR MMWAVE RECONFIGURABLE INTELLIGENT SURFACES 84

Aditya Shekhawat, Bharath G. Kashyap, Panagiotis C. Theofanopoulos, Anand Sengar, Georgios C. Trichopoulos, Arizona State University, United States

B4.2: TOWARDS E-BAND WAVELENGTH: 3D PRINTED GAUSSIAN CORRUGATED HORN FOR CASSEGRAIN ANTENNA APPLICATION 86

Javad Pourahmadazar, Concordia University, Canada; Reza Karimian, The George Washington University, United States; Mansoor Dashti Ardakani, INRS University, Canada

B4.4: 3D NON-LINE-OF-SIGHT TERAHERTZ IMAGING USING MIRROR FOLDING..... 89

Yiran Cui, Georgios C. Trichopoulos, Arizona State University, United States

B5: LOW-PROFILE MILLIMETER-WAVE/TERAHERTZ ANTENNAS FOR MOBILE AND SPACE APPLICATIONS

B5.2: LOW SIDELobe LEVEL RANDOMIZED RECONFIGURABLE REFLECTIVE SURFACES UNDER OBLIQUE INCIDENCE 96

Bharath G. Kashyap, Panagiotis C. Theofanopoulos, Georgios C. Trichopoulos, Arizona State University, United States

B5.5: LOW-PROBABILITY-OF-INTERCEPT/DETECT (LPI/LPD) SECURE COMMUNICATIONS USING PHASED-ARRAYS EMPLOYING SIDE-LOBE TIME MODULATION 100

Jiahao Zhao, John H. Booske, Nader Behdad, University of Wisconsin-Madison, United States

A3: MULTIBAND ANTENNA ARRAY CHALLENGES AND SOLUTIONS

A3.2: ULTRA-WIDEBAND MIMO ANTENNA REALIZATION FOR INDOOR KA-BAND APPLICATIONS 108

Musa Hussain, Bahria university Islamabad Campus, Pakistan; Qaisar Abbas, University of Engineering and Technology, Pakistan; Syed Hamza Hassan Gardzi, University of Management and Technology, Pakistan; Mohammad Alibakhshikenari, Universidad Carlos III de Madrid, Spain; Francisco Falcone, Public University of Navarre (UPNA), Spain; Ernesto Limiti, University of Rome Tor Vergata, Italy

A3.5: FAR FIELD EVM ESTIMATION FOR LARGE PHASED ARRAYS USING EMBEDDED ELEMENTS AND BEAM SQUINT MODEL 112

Dustin Brown, Yahya Rahmat-Samii, UCLA, United States

B6: ELECTROMAGNETIC THEORY AND TECHNIQUES

B6.2: EXTREMELY-LOW FREQUENCY (ELF) RADIO SENSING OF UNMANNED AERIAL SYSTEMS 115

Arjuna Madanayake, Hiruni Silva, FIU, United States; Soumyajit Mandal, Jarred Glickstein, Case Western Reserve University, United States

B6.5: MATCHING TECHNIQUES FOR MICROSTRIP ANTENNAS IN CLASSES TEACHING ELECTROMAGNETICS 119

Steven Weiss, The Army Research Lab, United States

J2: NEW TELESCOPES, TECHNIQUES, AND TECHNOLOGIES AND OBSERVATORY REPORTS II

J2.1: LOW NOISE I-BAND RF-OVER-FIBER SIGNAL TRANSPORT FOR ALPACA ON THE GBT 125

Mitchell Burnett, Nathaniel Ashcraft, Spencer Ammermon, Brian Jeffs, Karl Warnick, Brigham Young University, United States

B7: MULTISCALE AND STOCHASTIC MODELING IN COMPUTATIONAL ELECTROMAGNETICS

B7.1: FDTD SIMULATION OF STOCHASTIC SCATTERING LOSS DUE TO SURFACE ROUGHNESS 131 **IN OPTICAL INTERCONNECTS**

Brian Guiana, Ata Zadehgol, University of Idaho, United States

B7.5: ON THE PARALLEL PERFORMANCE OF SPAI-FETD SOLVERS FOR TIME-DOMAIN 136 **MAXWELL'S EQUATIONS**

Joonshik Kim, Fernando Teixeira, The Ohio State University, United States

D2: MILLIMETER-WAVE AND TERAHERTZ SYSTEMS FOR SPACE APPLICATIONS

D2.2: TECHNOLOGY MATURATION FOR CLOUD ICE RADIOMETERS..... 139

Pekka Kangaslahti, Erich Schlecht, Isaac Ramos, Javier Bosch, Mary Soria, Erika Hernandez, Jonathan Jiang, Jet Propulsion Laboratory, California Institute of Technology, United States; William Deal, Alex Zamora, Kevin Leong, Ben Gorospe, Alfonso Escorcia, Khanh Nguyen, Gerry Mei, Caitlyn Cooke, Maxwell Duffy, Northrop Grumman Corporation, United States

A4: INVENTIVE APPROACHES IN ADVANCED COMMUNICATIONS

A4.2: A ROBOTIC ANTENNA ALIGNMENT AND TRACKING SYSTEM FOR MILLIMETER WAVE 145 **PROPAGATION MODELING**

Bharath Keshavamurthy, Nicolo Michelusi, Arizona State University, United States; Yaguang Zhang, James Krogmeier, David Love, Purdue University, United States; Christopher Anderson, United States Naval Academy, United States

A4.3: RFSOC-BASED DIGITAL BEAMFORMER FOR MILLIMETER-WAVE MIMO APPLICATIONS 147

Kefayet Ullah, Satheesh Bojja Venkatakrishnan, John L. Volakis, Florida International University, United States

A4.4: DOPPLER FREQUENCY SHIFT COMPENSATION IN MILLIMETER-WAVE MULTI-PORT 149 **RECEIVER FRONT-ENDS**

Mansoor Dashti Ardakani, INRS University, Canada; Marzie Tabatabaefar, Serioja Ovidiu Tatu, Institut National de la Recherche Scientifique (INRS), Canada

C1: RADAR

C1.2: A MOBILE, HIGH TEMPORAL AND SPATIAL RESOLUTION FMCW CHANNEL SOUNDER 163

Carl L. Wolsieffer, Daniel J. Breton, Army Corps of Engineers, United States

C1.4: FPGA IMPLEMENTATION OF AN EFFICIENT NEURAL NETWORK MODEL FOR MAXIMUM 166 **POWER POINT TRACKING**

Dilruba Parvin, Omiya Hassan, Twisha Titirsha, Syed Kamrul Islam, University of Missouri, United States

C1.5: NON-CONTACT HEART RATE ESTIMATION IN LOW SNR ENVIRONMENTS USING 168 **MMWAVE RADAR**

Chandler Bauder, Aly Fathy, University of Tennessee Knoxville, United States

B8: ANALYSIS AND DESIGN OF ANTENNAS AND RF COMPONENTS

B8.1: MAGNETICALLY RECONFIGURABLE BAND-REJECT METASURFACE FILTER..... 170

Jack Eichenberger, Jize Dai, The Ohio State University, United States; Shuai Wu, Renee Zhao, Stanford University, United States; Nima Ghalichechian, Georgia Institute of Technology, United States

B8.2: UNDERSTANDING THE FAR-FIELD PROPERTIES OF ORBITAL ANGULAR MOMENTUM BEAMS THROUGH THE ANTENNA APERTURE FIELD METHOD 172

Anastasios Papathanasopoulos, Junbo Wang, Yahya Rahmat-Samii, UCLA, United States

B8.3: EXCEPTIONAL POINT OF DEGENERACY AS A DESIRABLE POINT OF OPERATION FOR OSCILLATOR WITH DISCRETE NONLINEAR GAIN AND RADIATING ELEMENTS 174

Tarek Mealy, Alireza Nikzamid, Ahmed Abdelshafy, Filippo Capolino, University of California, Irvine, United States

B8.7: OBJECT-ORIENTED RF EFFECTS SIMULATION 179

Robert Gardner, Georgia Tech Research Institute, United States

B9: NOVEL ELECTRICALLY SMALL ANTENNAS AND MATCHING NETWORKS

B9.4: MUTUAL COUPLING REDUCTION OF MINIATURIZED MM-WAVE ME-DIPOLE ANTENNAS USING SRR SUPERSTRATE 196

Mehri Borhani Kakhki, Tayeb A. Denidni, University of Quebec, Canada; Abdolmehdi Dadgarpour, Abdel-Razik Sebak, Concordia University, Canada; Marco A. Antoniadis, Ryerson University, Canada

B9.5: A MACHINE LEARNING APPROACH TO VARACTOR DIODE MODELING 198

Phillip Hagen, Qianyi Li, Ting-Yen Shih, University of Idaho, United States

B9.6: API DESIGN FOR MACHINE-LEARNING-BASED AUTOMATIC SYNTHESIS OF PRACTICAL IMPEDANCE MATCHING CIRCUITS 200

Qianyi Li, Ting-Yen Shih, University of Idaho, United States

K1: DOSIMETRY AND EXPOSURE ASSESSMENT

K1.3: THE DESIGN AND SAR ANALYSIS OF A UWB BOW-TIE ANTENNA FOR WIRELESS WEARABLE SENSORS 204

Karthik Kakaraparty, Ifana Mahbub, University of North Texas, United States

K1.4: EXTENDING RANGE OF WIRELESS POWER TRANSFER USING A NOVEL INTERMEDIATE PASSIVE LOOP WITH COILS 206

Bashir Morshed, Mahfuzur Rahman, Texas Tech University, United States

G3: RADAR AND RADIO TECHNIQUES

G3.1: SUPERDARN OBSERVATIONS OF STEVE..... 208

Gareth Perry, New Jersey Institute of Technology, United States; Bea Gallardo-Lacourt, NASA Goddard Space Flight Center, United States; William Archer, Canadian Space Agency, Canada; Simon Shepherd, Dartmouth College, United States; Ashton Reimer, SRI, United States; Megan Gillies, University of Calgary, United States

C2: RF SPECTRUM

C2.5: ADAPTIVE RADIO FREQUENCY INTERFERENCE CANCELLATION FOR RADIO SCIENCE 218

OBSERVATORIES

Sharanya Srinivas, Frank D. Lind, John Swoboda, Philip J. Erickson, Kazunori Akiyama, Massachusetts Institute of Technology, United States

D3: BROADBAND AND MULTIBAND AMPLIFIERS

D3.1: STATE OF THE ART TRANSFORMER ENABLED 2-20 GHZ GAN MMIC OVERVIEW 220

Michael Roberg, Qorvo, United States

D3.4: A 90-125 GHZ STACKED PA IN 130 NM INP HBT WITH 18.3 % PEAK PAE AT 15.3 DBM OUTPUT 224

POWER

Vinay Iyer, Jay Sheth, Linsheng Zhang, Robert M. Weikle II, Steven Bowers, University of Virginia, United States

K2: HUMAN BODY INTERACTIONS WITH ANTENNAS AND OTHER ELECTROMAGNETIC DEVICES

K2.2: ANALYSIS OF A WEARABLE JOINT FLEXION SENSOR USING ANATOMICAL TISSUE 227

MODELS

Keren Zhu, Asimina Kiourti, The Ohio State University, United States; Michael Johnson, C.J. Reddy, Altair Engineering, Inc., United States

K2.4: USING ANATOMICAL BODY MODELS TO SIMULATE ANTENNA-IMPREGNATED FABRICS 230

THAT MONITOR CHILD HEIGHT

Keren Zhu, Asimina Kiourti, The Ohio State University, United States; Michael Johnson, C.J. Reddy, Altair Engineering, Inc., United States

K2.7: ON-DEMAND CURRENT PULSE ACTIVATION OF RF MONOPOLE ANTENNA BIOSENSOR 234

ARRAYS WITH NITROCELLULOSE MEMBRANES

Sindu Shanmugasadas, Jonathan Lundsquit, Erdem Topsakal, Vitaliy Avrutin, Dr. Umit Ozgur, Virginia Commonwealth University, United States

F4: MICROWAVE REMOTE SENSING OF THE EARTH

F4.1: IMPACTS OF WSR-88D SUPPLEMENTAL LOWER ELEVATION ANGLES ON QUANTITATIVE 239

PRECIPITATION ESTIMATING

Haonan Chen, Liangwei Wang, Zhe Li, Colorado State University, United States

F4.5: IMPACT OF PRECIPITATION REGIMES ON DEEP LEARNING-BASED RADAR NOWCASTING 243

PERFORMANCE

Shun Yao, Haonan Chen, Colorado State University, United States

F4.7: ANTARCTIC FIRN CHARACTERIZATION THROUGH WIDEBAND MICROWAVE RADIOMETRY 246

Rahul Kar, Mustafa Aksoy, Dua Kaurejo, University at Albany, SUNY, United States

F4.9: RADIO FREQUENCY INTERFERENCE DETECTION IN MICROWAVE RADIOMETRY USING 249

BAYESIAN DETECTION

Imara Mohamed Nazar, Mustafa Aksoy, University at Albany, United States

C3: RF ANTENNA DESIGN AND SYSTEMS

C3.1: MACHINE LEARNING FOR MICROSTRIP PATCH ANTENNA DESIGN: OBSERVATIONS AND RECOMMENDATIONS 256

Yiming Chen, Atef Elsherbeni, Colorado School of Mines, United States; Veysel Demir, Northern Illinois University, United States

C3.3: PRIOR KNOWLEDGE BASED INVERSE PARAMETRIC MODELING OF UWB BAND-NOTCHED ANTENNAS 259

Debanjali Sarkar, Taimoor Khan, Fazal Ahmed Talukdar, NIT Silchar, India; Sembiam R. Rengarajan, California State University, United States

B10: ANTENNA ARRAYS: APPROACHES, REALIZATIONS, AND APPLICATIONS

B10.2: A PARTICLE SWARM APPROACH TO GRATING LOBE SUPPRESSION IN AN APERIODIC VIVALDI ARRAY 264

Gregory Mitchell, Quang Nguyen, Army Research Laboratory, United States

B10.3: SPARSE CIRCULAR APERTURE ARRAYS BASED ON POISSON DISK SAMPLING 266

Travis Torres, Payam Nayeri, Randy Haupt, Colorado School of Mines, United States; Paolo Rocca, University of Trento, Italy

B10.4: A HIGH-POWER-CAPABLE, ELECTRONICALLY-RECONFIGURABLE, PHASED-ARRAY UNIT CELL WITH 1-BIT PHASE QUANTIZATION AND 3:1 BANDWIDTH 268

Jinkai Wu, Zongtang Zhang, John Booske, Nader Behdad, University of Wisconsin, Madison, United States

B10.5: SPARSE CYLINDRICAL ARRAYS BASED ON THE LOW-DISCREPANCY SOBEL SEQUENCE SAMPLING 270

Travis Torres, Payam Nayeri, Randy Haupt, Colorado School of Mines, United States

B11: ANTENNAS AND SYSTEMS FOR SPECIALIZED PLATFORMS AND EXTREME/HARSH ENVIRONMENTS

B11.3: ULTRA-LIGHTWEIGHT TRANSMITARRAY ANTENNA ENABLED BY CHARGE-PROGRAMMED THREE-DIMENSIONAL MULTI-MATERIAL PRINTING 293

Junbo Wang, Ryan Hensleigh, Zhenpeng Xu, Anastasios Papathanasopoulos, Xiaoyu Zheng, Yahya Rahmat-Samii, University of California, Los Angeles, United States

B11.9: BENCH TESTING A SYSTEM ON CHIP ADAPTIVE BEAMFORMER FOR GPS 300

Jakob Kunzler, Karl Warnick, Jacob Bartschi, Spencer Ammermon, Mitchell Burnett, Brigham Young University, United States

G5: IONOSPHERIC MODELING AND DATA ASSIMILATION

G5.4: A NEW ROUTINE TO SIMULATE PLASMA DENSITY MEASUREMENTS FROM SATELLITES: APPLICATION TO THE SPORT PROJECT 305

Ana Paula Schuch, João Pedro Borher, Marco Ridenti, Willer Gomes, Aeronautics Institute of Technology, Brazil

K3: ELECTROMAGNETIC IMAGING AND SENSING

K3.7: EXPERIMENTAL DEMONSTRATION OF GEOMETRIC PARAMETER ESTIMATION OF HIDDEN OBJECTS IN LAYERED MEDIA 317

Kai Ren, Wentworth Institute of Technology, United States

F5: PROPAGATION AND REMOTE SENSING IN COMPLEX AND RANDOM MEDIA

F5.2: TWO-RAY PROPAGATION MODEL WITH RANDOM VOLUMETRIC SCATTERING 322

Vladimir Ostashev, Daniel J. Breton, D. Keith Wilson, Carl L. Wolsieffer, U.S. Army Engineer Research and Development Center, United States

F5.3: L BAND NON-LINE OF SIGHT WAVE PROPAGATION REFLECTED FROM A TREE COVERED MOUNTAIN SIDE 324

Can Suer, the George Washington University, United States; Roger H. Lang, George Washington University, United States; Carl L. Wolsieffer, Daniel J. Breton, U.S. Army Corps of Engineers - Engineer Research & Development Center, United States

F5.4: A SPACE-ANGLE DISCONTINUOUS GALERKIN METHOD FOR TWO-DIMENSIONAL RADIATIVE TRANSFER EQUATION WITH REFLECTIVE BOUNDARY CONDITIONS 326

Hang Wang, Reza Abedi, University of Tennessee Space Institute, United States; Saba Mudaliar, Air Force Research Laboratory, Wright-Patterson AFB, United States

F5.5: DNN ENABLED REAL-TIME MODELING OF EM LWD TOOL RESPONSES IN COMPLEX SUBSURFACE FORMATIONS 328

Chaoxian Qi, Li Yan, Yuchen Jin, Xuqing Wu, Jiefu Chen, University of Houston, United States; Yueqin Huang, Cyentech Consulting LLC, United States

F5.9: TRANSITIONAL REVERSIBLE-JUMP MCMC FOR SUBSURFACE CHARACTERIZATION 333

Han Lu, Jiefu Chen, Xuqing Wu, Xin Fu, University of Houston, United States; Mohammad Khalil, Cosmin Safia, Sandia National Laboratories, United States; Yueqin Huang, Cyentech Consulting LLC, United States

J6: NEW FRONTIERS IN SOLAR RADIOPHYSICS

J6.7: THE SUN RADIO INTERFEROMETER SPACE EXPERIMENT (SUNRISE) MISSION 340

Joseph Lazio, Andrew Romero-Wolf, James Lux, Jet Propulsion Laboratory, California Institute of Technology, United States; Justin Kasper, University of Michigan, United States; Tim Neilsen, Space Dynamics Laboratory, Utah State University, United States