Program for the SSP Workshop at IEEE WiSEE 2021

TUESDAY, OCT 12

1:00-3:00 *Special Session on Reflectarrays*

1:00 Opening Remarks, Invitation to Publish in IEEE JRFID Special Issue. Reza Zekavat, Worcester Polytechnic Institute
1:15 Improvements to Reflectarray Design for Microwave Wireless Power Transfer. Evan Shi, Johns Hopkins Applied Physics Lab, Gregory D. Durgin, Georgia Tech
1:30 3D Printed Deployable Origami-inspired Dielectric Reflectarray Antenna with Beam-scanning Ability. Yepu Cui, Georgia Tech
1:45 Design of Circularly Polarized Mechanically Reconfigurable Reflectarrays for Satellite Communications and Power Transfer. Joshua Roper, ViaSat, Andrew F. Peterson, Georgia Tech
2:00 Power Transmission using Reflect and Transmit Array Configurations, Atef Elsherbeni, Colorado School of Mines
2:15 Large Phased Spaced Solar Power Satellite Array Guided by Phase-based Tunneling RFID Tags. Cheng Qi, Cognosos LLC
2:30 Panel on How to Achieve Phase Coherence in a Large Array. TBD

3:15-4:45 *Special Session on Space Ambient Power*

3:15 Smart Beamforming and Focusing for WPT. Diego Masotti and Alessandra Costanzo, University of Bologna
3:30 Low-Cost, High-Gain and Wide Angular Coverage Terrestrial Receivers of Space Ambient Power. Aline Eid, Georgia Tech
3:45 Space-Based Ambient Power for Sensors and Other Low-Power Applications. Stewart Thomas, Bucknell University and Gregory D. Durgin, Georgia Tech
4:00 Bootstrapping Lunar Exploration to Settlement: Power and Ancillary Services Beaming. Gary P. Barnhard and Seth D. Potter, XISP-Inc
4:15 Panel on Space Ambient Power

WEDNESDAY, OCT 13

1:00-3:00 *Special Session on Additively Manufactured Electronics in Space*

1:00 3D-Printed Microfluidic Sensors for Satellite Health Monitoring. Herve Aubert, LAAS Toulouse
1:15 On-Orbit Polymer Mass Loss Results from MakerSat-0 and MakerSat-1 Missions. Connor Nogales, Braden Grim, Mitch Kamstra, Ben Campbell, Joshua Griffin, and Stephen Parke, Northwest Nazarene University
1:30 Additive Manufacturing RF Components for Space Solar Power. Prof. Manos Tentzeris, Georgia Tech
1:45 Transparent Rectenna Design for Space Solar Power Applications Thomas Rodriguez, Georgia Tech
2:00 An Overview of Optically Transparent Antennas and Applications to Space Solar Power. Zachary J. Silva, Sandia National Laboratory, Christopher R. Valenta, GTRI
2:15 Quasi-Geostationary Earth Orbits for Space Solar Power Infrastructure and Other Low Area Density Satellites. Gregory D. Durgin, Georgia Tech
2:30 Panel on Role of Additively Manufactured Electronics in Space Solar Power. TBD

3:15-4:45 *Power Systems and Economics*

3:15 Virtus Solis Technologies' Approach to Space Solar Power. John Bucknell, Virtus Solis
3:30 Power Systems Engineering Infrastructure: Scalable Interoperable, EVA and Robotic Compatible Power Generation, Storage, and Distribution Systems for Cislunar Space. Gary Barnhard, XISP-Inc
3:45 Energy Economics Update: Perspective 2021. Gail Tverberg, Our Finite World
4:00 US Power Grid Stability, Reliability, Resilience, Security and ... our next Giant Leap. Darel Preble, Space Solar Power Institute
4:15 Panel on the Business Case for SSP on the Grid

THURSDAY, OCT 14

1:00-3:00 *Novel Concepts I*

1:00 Orchestrating Symbiosis: Foundational technologies for Human, Robotic, and Autonoma Shared Control – Exploring the Framework. Gary P. Barnhard, XISP-Inc
1:15 Laser Power Beaming Characterization Using Single- and Double-Junction GaAs Photovoltaic Cells. Vladislav Yakovlev and Dominik Doktor, Texas A&M
1:30 Analysis of On-Orbit Assembly Methods of Interlocking Spacecraft Structures. Miles Turner, Martin Davisson, and Brian Gunter, Georgia Tech
1:45 Constrained Admissible Regions for Time Difference of Arrival Orbit Determination. Steven Dumas, AFRL
2:00 Panel on Challenges of Large Space-Based Infrastructure

3:15-4:45 *Novel Concepts II*

3:15 Strange Bedfellows: Space Solar Power's Relationship to the IEEE Council for RFID, Gregory D. Durgin, Georgia Tech, and Stewart Thomas, Bucknell University
3:30 Experimental Results and Analysis of Microwave Power Transmission Demonstration System for SSPS. Yazhou Dong, Shiwei Dong, Ying Wang, Xiaojun Li National Key Lab. of Science and Technology on Space Microwave
3:45 Recent R&D Projects and Roadmap toward SPS in Japan. Naoki Shinohara, University of Kyoto
4:00 All-Electric Aircraft Mm-Wave High-Speed and Low Cost Mid-Air Recharging: Satellite and Aircraft Array Configuration Study. Shu Ting Goh, National University of Singapore
4:15 Panel on International Efforts in Space Solar Power

On-Demand Talks (12-14 October 2021)

On-Demand: Power Beaming and Space Applications. Paul Jaffe, Naval Research Laboratory
On-Demand: Tutorial: Elementary Astrodynamics for Engineers Gregory D. Durgin, Georgia Tech
On-Demand: Greg Power Transmission Tutorial?
On-Demand: Reza Tutorial?