SSP Workshop Program @ IEEE WiSEE 2018

Chairs: Reza Zekavat (Michigan Tech & WPI)**, Darel Preble** (SSP Institute)**, Tatiana Vinogradova (**Northrop Grumann & Caltech)

Dec. 11 2018

SSP T1 (9:45-11:45): SSP Introduction and Motivation; Chair: Reza Zekavat

- SSP Introduction and Motivation (Reza Zekavat, Michigan Tech & WPI, USA: 5 min);
- SSP Security and Economy Impacts (Darel Preble, SSP Institute, USA: 35 min includes Q/A);
- SSP Implementation Concepts (Paul Jaffe, NRL, USA: 45 min includes Q/A);
- SSP Propagation, SSP Frequency Selection, and Orbit Selection (Reza Zekavat, Michigan Tech & WPI, USA: 35 min includes Q/A);

SSP T2 (1:15-3:15): Tutorial: Technologies Essential to SSP – Part 1; Chair: Tatiana Vinogradova

- Space Robotics and Modularity (Paul Jaffe, NRL, USA: 60 min includes Q/A);
- Photovoltaic technologies summary for SSP applications (M. Kelzenberg, Northrop Grumann and Caltech: 60 min includes Q/A)

SSP T3 (3:40-5:40): Tutorial: Technologies Essential to SSP – Part 2; Chair: Darel Preble

- Transmission Technologies for Space Solar Power (Greg Durgin; Georgia Tech, USA, 60 min includes Q/A);
- Rectenna technologies for SSP applications (J. McSpadden, Raytheon, USA: 60 min includes Q/A);

Dec. 12 2018

Keynote (8:40-9:20): Technology developments relevant to Solar Power Satellite system design, Prof. Takano

SSP T4 (9:45-11:45): SSP Launch and Environment Considerations; Chair: Reza Zekavat

- SSP System resilience/environmental consideration, radiation environment, thermal design (Tatiana Vinogradova, Northrop Grumann and Caltech: 55 min includes Q/A);
- SSP Launch; Transport; Thrusters (Dallas Bienhoff, Cislunar Space Development Co.: 55 min includes Q/A);
- Closing Remarks (Reza Zekavat and Darel Preble: 10 min);

SSP S5 (1:15-3:15): SSP Political, International and Economy Views; Chair: Darel Preble

- The techno-political situation of Space Solar Power System in Japan, (Prof. Takano: 45 min includes Q/A)
- Paper: 1570481490 Microwave Power Transmission Researches in China (Shi-Wei Dong (National Key Laboratory of Space Microwave Technology, P.R. China); Xiaojun Li (National Key Laboratory of Science and Technology on space Microwave, P.R. China), 30 min includes Q/A)
- Energy-Economy Update/Perspective, (Gail Tverberg, SSP Institute, USA: 45 min includes Q/A)

SSP S6 (3:40-5:40): SSP Technology Readiness; Chair: Tatiana Vinogradova

- Paper: 1570471416 Use of an Iterative Research and Development - System Engineering Approach for the Caltech Space Solar Power Project (Richard G Madonna (System Engineering Consultants, USA), 30 min includes 5 min Q/A)
- Paper: 1570471880 Thermal performance evaluation of ultra-light space solar power satellite for GEO and LEO orbits (Tatiana Vinogradova (Northrop Grumman Aerospace Systems & Caltech, USA), 30 min includes 5 min Q/A)
- Caltech SPS project overview, (Michael Kelzenberg, Northrop Grumman Aerospace Systems & Caltech, USA, 30 min includes 5 min Q/A)
- Paper: 1570484379 Substrate Dependent Texture in Mixed Halide Perovskite Films (Jason Allen, Matthew Rager, Zhiquin Lin and Hamid Garmestani (Georgia Tech, USA) 30 min includes 5 min Q/A)

Dec. 13 2018

SSP S7 (9:45-11:45): SSP paper presentation; Chair: Darel Preble

- Paper: 1570480198 All Electric Aircraft Mid-Air Recharging via Wireless Power Transfer: Battery Requirement Study (Shu Ting Goh (National University of Singapore, Singapore); Seyed (Reza) Zekavat (Michigan Technological University, USA), 30 min including 5 min Q/A)
- Paper: 1570484142 A 5.8 GHz Energy Harvesting Tag for Sensing Applications in Space (Cheng Qi (Georgia Institute of Technology, USA); Quentin Frederick, Kaleb Davis, Dakota Lindsay, Julie Cox, Stephen Parke and Joshua D Griffin (Northwest Nazarene University, USA); Gregory Durgin (Georgia Tech, USA), 30 min includes 5 min Q/A)
- Paper: 1570482553 Beamed propulsion doable now, and with it space solar power (Robert Clark (Widener University & Exoscience, USA), 30 min includes 5 min Q/A)
- Paper: 1570484453 True Random Number Generator using Solar Output Characteristics (Biswajit Ray (University of Alabama in Huntsville, USA), 30 min includes 5 min Q/A)