CALL FOR PAPERS
IEEE Journal of Radio Frequency Identification

Special Issue on Space Solar Power

With all deference to the policy-makers of our world, the great energy-related challenges of the 21st century – an energy crunch, emissions-related climate change, and socio-economic upheavals – will be most successfully met through technological innovation. Thus, the newly-formed IEEE CRFID Technical Committee on Energy Harvesting Systems and its Space Solar Power working group have proposed a special issue on Space Solar Power for the IEEE Journal on RFID to study the state of the art for this active and exciting field.

Much has changed in the last fifty years. The 2021 return-on-investment of a space solar power system is approaching economical provision of baseload power to the terrestrial electric grid and this margin already has dropped substantially since the original concept studies. Key gains have been made in solar cell efficiency, reduction of launch costs, and recognition of the hidden costs of our current energy sources. With emerging gains to be made in additively manufactured electronic systems, high-efficiency microwave sources and antennas, and further privatization and scaling of space launches, it is hard not to be optimistic about the field. Space solar power, as a field, has also grown to include on-demand vehicle charging, space ambient power, forward base and emergency power provision, wirelessly powered devices in space and the Internet of Space (IoS), and lunar and other-world applications of wirelessly powered technology.

We present this open call for papers to our growing community. In particular, we personally invite all contributors of the annual IEEE WiSEE Space Solar Power workshop to submit manuscripts (or sufficiently expand existing conference papers). Topics include, but are not limited to:

- wireless/microwave power transfer
- photovoltaics for space
- comparative energy economics, issues
- green energy alternatives
- energy, space, environmental policy makers
- SSP channel modeling/wireless system design
- array technology for power transmission
- antenna and solar integration
- additive manufacturing for space
- astrodynamics for low area-density satellites
- communication, interference studies
- space-based manufacturing
- frequency spectrum, ITU adoption
- large antenna aperture conditioning
- large array beam-forming; high-power arrays
- cis-lunar and off-world power transfer
- space traffic analysis of SPS systems
- space ambient power
- transmission modulation, multiple access, freq.
- orbital security and space debris
- system structural architecture
- packaging and assembly in space
- energy collection concepts and designs
- high-powered microwave and mm-wave sources
- space-hardening / in-space system performance
- thermal management
- optical power transfer solutions
- environmental impact / planetary sustainability
- reflectarrays for power transmission
- education and public relations
- multi-layer power transfer (air-to-water/body/etc.)
- space-to-air power transfer for aircraft/drone
- mobile-to-mobile tracking for power transfer

Important Dates:
Submission Deadline: 1 February – 1 March 2022
First Review Due: 1 April 2022
Revision Due: 1 May 2022
Second Review Due: 1 July 2022
Final Manuscript Due: 1 August 2022
Publication Date: September 2022

Submission Guidelines:
The original manuscripts to be submitted by the authors need to follow the format described at: https://journals.ieeeauthorcenter.ieee.org/submit-your-article-for-peer-review/the-ieee-article-submission-process. Authors are requested to electronically submit their manuscripts through the IEEE Manuscript Central at: https://mc.manuscriptcentral.com/jrfid.

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