

CALL FOR PAPERS

IEEE SECON 2022 Workshop on Reconfigurable Holographic and Intelligent Surfaces for Green 6G Sensing, Communication and Networking

Important Dates

Paper Submission Deadline: **30 June 2022**

Acceptance Notification: **25 July 2022**

Camera-Ready Due: **10 August 2022**

Workshop Date: **23 September 2022**

General Co-Chairs

Aryan Kaushik (University of Sussex, UK) (**Chair**)

Nan Yang (Australian National University, Australia)

Wonjae Shin (Ajou University, South Korea)

Vasanthan Raghavan (Qualcomm, USA)

Yijie (Lina) Mao (ShanghaiTech University, China)

Steering Committee

Carlo Fischione (KTH Royal Inst. of Tech., Sweden)

Marco Di Renzo (Paris-Saclay University, France)

John Thompson (University of Edinburgh, UK)

Arman Shojaeifard (Interdigital Europe, UK)

George Alexandropoulos (University of Athens, Greece)

TPC Co-Chairs

Muhammad Z. Shakir (Uni. of the West of Scotland, UK)

Cunhua Pan (Southeast University, China)

Changsheng You (Southern Uni of Sci. & Tech., China)

Hongliang Zhang (Princeton University, USA)

Keynote Speakers

Marco Di Renzo (Paris-Saclay University, France)

Mohamed-Slim Alouini (King Abdullah University of Science and Technology, Saudi Arabia)

Yonina Eldar (Weizmann Institute of Science, Israel)

George Alexandropoulos (University of Athens, Greece)

Paper Submission

Papers should follow **IEEE SECON 2022** workshop submission guidelines: <https://secon2022.ieee-secon.org>

All papers will be submitted through EDAS, and all accepted papers will be published in IEEE Xplore.

To tackle the sub-6 GHz spectrum congestion and chunky mobile equipment, advanced 6G systems and networks are required to utilize intelligent yet energy- and hardware-efficient techniques for achieving high data rate and low complexity. In 6G systems and networks, reconfigurable holographic surfaces (RHS) can be implemented, which are composed of numerous metamaterial radiation elements integrated in a holographic pattern to generate beams with desirable directions. Besides, reconfigurable intelligent surfaces (RIS) tend to be passive devices which leverage smart radio surfaces with high number of small antennas or metamaterial elements. Multiple-input multiple-output (MIMO) antenna setup can be incorporated with RHS/RIS to realize sensing, communication and networking. Machine learning and AI tools can be also explored.

RHS/RIS configurations can be applied across the radio spectrum, from sub-6 GHz to millimeter wave through to terahertz frequencies with massive antenna connectivity. The implementation of RHS/RIS with multiple functionalities of sensing, communication, and networking, provides a new paradigm for Green 6G technology. RHS/RIS can be intertwined with emerging technologies such as internet-of-things (IoT), internet-of-everything (IoE), vehicle to everything (V2X) and unmanned aerial vehicles (UAVs). Rate splitting multiple access (RSMA) approach can be also incorporated with RHS/RIS for green and interference management solutions. Our **“Workshop on Reconfigurable Holographic and Intelligent Surfaces for Green 6G Sensing, Communication and Networking”** will take place at the **IEEE SECON 2022**. This virtual workshop will provide a forum for sharing cutting-edge contributions to emerging “RHS/RIS aided-Green 6G”. We aim to bring together leading researchers in the field, both from academia and industry, to share their recent findings and views on this topic.

We seek to assemble cross-cutting and high-quality original research papers on topics including, but not limited to:

- Beamforming, RF optimization, low resolution DAC and ADC sampling for RHS/RIS-Green 6G
- Interference management, MIMO-RSMA, MIMO-NOMA, MIMO-SDMA for RHS/RIS-Green 6G
- RHS/RIS for integrated sensing, localization, communication
- UAV-assisted wireless, IoT, IoE and V2X with RHS/RIS
- Resource allocation/management, transmission protocols, and wireless powered IoT with RHS/RIS-Green 6G
- AI, machine learning, deep learning with RHS/RIS-Green 6G
- RHS/RIS-Green 6G with LEO satellites, satellite networking
- RHS/RIS-Green 6G with target localization, low probability of intercept, low complexity waveforms
- MmWave, THz channel modelling with RHS/RIS-Green 6G
- Channel estimation, imperfect CSI with RHS/RIS-Green 6G
- RIS/RHS-MIMO: network optimization and emerging physical layer applications
- URLLC, eMBB, mMTC with RHS/RIS-Green 6G
- Physical layer security with RHS/RIS-Green 6G