Call for Contributions

1. Inform the Chair: with the Title of your Contribution
2. Submission URL:
https://www.iariasubmit.org/conferences/submit/newcontribution.php?event=ICWMC+2023+Special
Please select Track Preference as **RIS**
3. Note: *For 2023, all events will be held in a hybrid mode: on site or virtual choices (live, prerecorded videos, voiced presentation slides, and .pdf slides). We hope for better times allowing us to return to the traditional on site scientific events. However, we are ready to adapt any which way the conditions dictate.*

Special track

RIS: Reconfigurable Intelligent Surface Assisted Mobile Communications

Chair
Prof. Dr. Ahmed El-Mahdy
German University in Cairo, Egypt
ahmed.elmahdy@guc.edu.eg

along with
ICWMC 2023: The Nineteenth International Conference on Wireless and Mobile Communications
https://www.iaria.org/conferences2023/ICWMC23.html
March 13 - 17, 2023 - Barcelona, Spain

In recent years, the rise of innovative vertical services poses *new critical challenges and more stringent requirements* that were not fully achieved during the design of 5G networks such as ultra-high data rate and energy efficiency and extremely high reliability and low latency, as well as global coverage and connectivity. Moreover, in order to face these new challenges, it will not be sufficient to develop only a more performing transmission technology, as it was the case for all previous wireless generations. In view of the above limitations, it is imperative to develop *sixth-generation (6G) wireless*, with low and affordable cost, complexity, and energy consumption. Indeed, *6G wireless* will have to support many innovative vertical services, each with its own specific requirements:

(1) End-to-end latency of 1 ns and reliability higher than 99.999%,
(2) Per-user data-rate of the order of Terabit/s for broadband applications, and
(3) Terminal location accuracy of the order of 0.1m for V2X communications.

In this context, a recent technological breakthrough that holds the potential to revolutionize the traditional approach to wireless network design and operation is that of RIS. Recently, RIS has emerged as a new and revolutionary technology to achieve spectrum-, energy- and cost-efficient wireless networks and considered as one of the potential enabling technologies for 6G wireless networking. RIS is a planar surface comprising a large number of *passive low-cost reflecting elements*, each of which is able to induce a controllable amplitude and/or phase change to the incident signal independently. Each of the reflecting elements can independently control the phase of the reflected signal so that the reflected signal can be coherently superimposed in the desired direction, which is called passive beamforming. RIS has many benefits in wireless communications as:

(1) It has low-cost printed dipoles) only passively reflect the impinging signals without requiring any transmit radio frequency (RF) chains,
(2) RIS operates in full-duplex (FD) mode and is free of any antenna noise amplification as well as self-interference,
(3) Since RIS is generally of low profile, light weight, and conformal geometry, it can be easily mounted on/removed from environment objects for deployment/replacement,

(4) RIS can significantly enhance the spectral and energy efficiency and reduce the hardware cost of traditional wireless transceivers and can be integrated with the 5G existence technology as NOMA, full-duplex, mm wave, and Massive MIMO.

The topic of RIS-based wireless communications is emerging as one of the main research directions in the wireless community. This special session focuses on attracting novel and solid contributions on the emerging topic of reconfigurable intelligent assisted future mobile communications. Both theoretical and more applied contributions are solicited, covering, but not necessarily limited to, the following topics.

Example Subtopics for Contributions include, but are not limited to:

- Integrating RIS with state-of-the-art wireless technologies (e.g. small cells, visible light communications, THz communication, free space optics, IoT, drones-aided communications, energy harvesting, physical layer security techniques, etc.)
- UAV communication based Reconfigurable Intelligent Surface
- RIS-based hybrid precoding for Millimeter-Wave Massive MIMO-NOMA system
- Joint active and passive beamforming design for RIS-empowered wireless networks
- Fundamental performance limits of RIS-empowered wireless networks
- Channel estimation for RIS-empowered wireless networks
- RIS sensing, computing, and communication
- Experimental results and testbed implementations of RIS
- Software-defined design and implementation of RIS-empowered wireless networks
- AI-inspired design of and management of RIS-empowered wireless networks
- Multiple Access design for RIS-empowered wireless networks
- Deployment design of RIS in wireless networks
- Capacity and resource allocation for RIS-empowered wireless networks
- Reconfigurable Intelligent Surface aided V2X communications in heterogeneous network

Contribution Types
- Regular papers [in the proceedings, digital library]
- Short papers (work in progress) [in the proceedings, digital library]
- Posters: two pages [in the proceedings, digital library]
- Posters: slide only [slide-deck posted on www.iaria.org]
- Presentations: slide only [slide-deck posted on www.iaria.org]
- Demos: two pages [posted on www.iaria.org]

Important Datelines
Inform the Chair or Coordinator: As soon as you decide to contribute
Submission: January 26, 2023
Notification: February 13, 2023
Registration: February 23, 2023
Camera-ready: February 23, 2023
Note: *The submission deadline is somewhat flexible, providing arrangements are made ahead of time with the chair.*

Paper Format
- See: http://www.iaria.org/format.html
- Before submission, please check and comply with the editorial rules:
http://www.iaria.org/editorialrules.html

Publications
- Extended versions of selected papers will be published in IARIA Journals: http://www.iariajournals.org
- Print proceedings will be available via Curran Associates, Inc.: http://www.proceedings.com/9769.html
- Articles will be archived in the free access ThinkMind Digital Library: http://www.thinkmind.org

Paper Submission
https://www.iariasubmit.org/conferences/submit/newcontribution.php?event=ICWMC+2023+Special
Please select Track Preference as **RIS**

Registration
- Each accepted paper needs at least one full registration, before the camera-ready manuscript can be included in the proceedings.
- Registration fees are available at http://www.iaria.org/registration.html

Contact
Chair: Ahmed El-Mahdy, ahmed.elmahdy@guc.edu.eg
Logistics: steve@iaria.org