

# Call for Papers — Feature Topic, Vol.17, No.11, 2020

## Tracking, Telemetry and Telecommand for Satellite Constellation

In the traditional tracking, telemetry and telecommand (TT&C) for satellite missions, it is necessary and suitable to choose the centralized control mode, due to the limited number of satellites requiring few ground stations, low ground processing complexity; relatively simple space tasks requiring low ground-based TT&C coverage percentage, which gives the ability to complete the TT&C services during contact periods. Furthermore, in the past the satellite is limited by the on-orbit processing capability, which requires the mission center to supervise the work status of the satellite.

However, the satellite constellations, such as Starlink, OneWeb, Hongyan, Hongyun, are emerging one by one. The number of satellites can achieve several hundreds even several ten thousands. In this case, it could bring about the imbalance between supply and requirement of TT&C services, such as the increase of satellite numbers and 7\*24 full-time TT&C requirements vs. the area restricted and number limited ground stations, along with the limited user support capabilities by the tracking and data relay satellite systems (TDRSS). Meanwhile, with the improvement of on-orbit process, intelligence and autonomy, the satellite would provide automatic management, self-monitoring diagnosis and abnormal handling. Since evolution from a single satellite to a satellite constellation represents the general trend, it is necessary to study on the new TT&C technologies for satellite constellation.

The feature topic solicits submissions of manuscripts that represent novel research contributions on technologies, applications, services, architectures, solutions, and standardization activities of TT&C for Satellite Constellation. Papers describing algorithms, models, prototypes, implementations, tools, and paradigms are welcome. Survey papers or visionary articles indicating future directions from different perspectives are also encouraged.

The goal of this feature topic is to present state-of-the-art original research, and latest advances and innovations in key theories, techniques, schemes, applications, and solutions for TT&C, as well as to identify emerging research topics and examine the future. Extended versions of papers published in conferences, symposium, or workshop proceedings may also be submitted.

## SCHEDULE

**Submission Deadline:** June 30, 2020

**Acceptance Notification (1st round):** July 15, 2020

**Revision Due:** August 15, 2020

**Final Decision Due:** August 31, 2020

**Final Manuscript Due:** September 30, 2020

**Publication Date:** November 15, 2020

## GUEST EDITORS

Yafeng Zhan, Tsinghua University, China

Guoting Zhang, Beijing Institute of Tracking, Telemetry and Telecommand, China

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Gengxin Zhang, Nanjing University of Posts & Telecommunications, China

## TOPICS OF INTEREST INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:

- Optimization of topological structure for satellite constellation
- Routing optimization of inter-satellite-links for satellite constellation
- Integration of communication and navigation for satellite constellation
- anti-interference of TT&C for satellite constellation
- Security of TT&C for satellite constellation
- Autonomy of satellite constellation
- Expand application of TT&C for satellite constellation

## SUBMISSION GUIDELINES

This feature topic “Tracking, Telemetry and Telecommand for Satellite Constellation” invites submissions of original, previously unpublished technical papers and visionary articles exploring the architecture, techniques, and applications in TT&C for Satellite Constellation. All submissions will be anonymously peer reviewed and will be evaluated on the basis of their technical content. Potential topics of interest include, but not limited to areas listed above.

Papers should be submitted in two separate .doc files (preferred) or .pdf files: 1) Main Document (including paper title, abstract, key words, and full text); 2) Title page (including paper title, author affiliation, acknowledgement and any other information related with the authors’ identification) through the Manuscript Central. Please register or login at <http://cn03.manuscriptcentral.com/chinacomm>, then go to the author center and follow the instructions there. **Remember to select Tracking, Telemetry and Telecommand for Satellite Constellation ---November Issue 2020” as your manuscript type when submitting;** otherwise, it might be considered as a regular paper.

- an abstract of about 150 words
- 3-8 keywords
- original photographs with high-resolution (300 dpi or greater); eps. ortif. format is preferred; sequentially numbered references.
- sequentially numbered references. The basic reference format is: author name, “article name”, issue name (italic), vol., no., page, month, year. for example: Y. M. Huang, “pervature in wireless heterogeneous...”, IEEE Journal on Selected Areas, vol. 27, no. 5, pp 34-50, May, 2009.
- brief biographies of authors (50-75 words)
- contact information, including email and mailing addresses

Please note that each submission will normally be approximately 4500 words, with no more than 20 mathematical formulas, accomplished by up to 10 figures and/or tables.

# Call for Papers – Feature Topic, Vol.17, No.12, 2020

## New Advances in Non-Orthogonal Multiple Access

Multiple access is one of the core technologies in wireless communications, which enables wireless base stations to support a large number of terminal users and serve them simultaneously under stringent spectrum constraints. Orthogonal multiple access (OMA), as one multiple access method, has been prevailing since the first generation (1G) cellular system. However, the number of active users allowed access to the OMA system is strictly limited by the number of available orthogonal resources since as required by OMA the communication resources allocated to different users are orthogonal in at least one radio resource dimension, e.g., frequency, time, code, etc. Nowadays, with the rapid growth of mobile network and Internet of Things (IoT) this problem becomes more and more critical.

Non-orthogonal multiple access (NOMA), as another multiple access method, arises as a promising solution to the aforementioned problem. In contrast to OMA, NOMA simultaneously accommodates a multitude of users with the same radio resource via superposition coding and successive interference cancellation (SIC), achieving high spectral efficiency, massive connectivity, and enhanced user fairness. Owing to its promising features, NOMA has been highlighted in many fifth generation (5G) white papers produced by industrial and academic bodies. However, there are still a number of open issues remaining to be solved before NOMA can be successfully applied in practical systems.

This feature topic aims to bring together leading researchers in both academia and industry from diversified backgrounds to unlock the potential of NOMA for beyond 5G networks. Extended versions of papers published in conferences, symposiums, or workshop proceedings are encouraged for considerations.

### SCHEDULE

**Submission Deadline:** May 30, 2020

**Acceptance Notification (1st round):** July 15, 2020

**Revision Due:** August 15, 2020

**Final Decision Due:** August 31, 2020

**Final Manuscript Due:** September 30, 2020

**Publication Date:** December 15, 2020

### GUEST EDITORS

- Prof. Miaowen Wen, South China University of Technology, China
- Prof. Wei Duan, Nantong University, China
- Prof. Zhiguo Ding, IEEE Fellow, The University of Manchester, UK
- Prof. Daniel Benevides da Costa, Federal University of Ceara (UFC), Brazil
- Prof. Ioannis Krikidis, IEEE Fellow, Cyprus University, Cyprus
- Dr. Yifei Yuan, China Mobile Research Institute, China

### TOPICS OF INTEREST INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:

- Emerging applications of NOMA in B5G, IoT, V2X, and UAV
- Cooperative NOMA systems
- Resource allocation in NOMA networks
- Energy efficiency optimization for NOMA systems
- Grant-free NOMA system design
- Channel coding and modulation schemes for NOMA
- Security provisioning in NOMA
- Multiple antenna techniques for NOMA
- NOMA assisted wireless caching and mobile edge computing
- Machine learning for NOMA
- NOMA in wireless powered communications
- Reconfigurable intelligent surfaces for NOMA

### SUBMISSION GUIDELINES

This feature topic “New advances in non-orthogonal multiple access” invites submissions of high-quality original research papers capturing the state-of-the-art advances in NOMA and foster new avenues for research in this area. Potential topics of interest include, but not limited to areas listed above.

Papers should be submitted in two separate .doc files (preferred) or .pdf files: 1) Main Document (including paper title, abstract, key words, and full text); 2) Title page (including paper title, author affiliation, acknowledgement and any other information related with the authors’ identification) through the Manuscript Central. Please register or login at <http://mc03.manuscriptcentral.com/chinacomm>, then go to the author center and follow the instructions there. **Remember to select “New advances in Non-Orthogonal Multiple Access–December Issue, 2020” as your manuscript type when submitting;** otherwise, it might be considered as a regular paper.

- an abstract of about 150 words
- 3-8 keywords
- Original photographs with high-resolution (300 dpi or greater); eps. or tif. format is preferred sequentially numbered references. The basic reference format is: author name, “article name”, issue name(italic), vol, no., page, month, year. for example: Y.M Huang, “pervature in wireless heterogeneous..”, IEEE Journal on Selected Areas, vol.27, no. 5, pp 34-50, May, 2009.
- brief biographies of authors (50-75 words)
- contact information, including email and mailing addresses

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# Call for Papers – Feature Topic, Vol.18, No.2, 2021

## Wireless Communications with Reconfigurable Intelligent Surfaces

With the commercialization of the fifth generation (5G) wireless networks in 2019, developing the next generation wireless standard has been put on the agenda. To cope with the 1000x capacity requirements, the 5G wireless networks has adopted massive MIMO as a key enabling physical layer technology to boost the spectral efficiency. In addition, higher frequency band such as millimeter wave band is exploited to address the spectrum shortage problem. Looking ahead, it has been envisioned that further scaling up the antenna number, such as ultra-massive MIMO and moving into even higher frequency band such as Terahertz (THz) band, are two promising directions. However, deploying thousands of antennas in the conventional approach is unsustainable due to the huge cost associated with the massive number of RF chains. Moreover, cost-effective and high-performance RF components working in the extremely high frequency band are currently not available. These challenges should be properly addressed before ultra-massive MIMO and THz technologies can be possibly implemented in practice.

Recently, a novel concept, referred to as Reconfigurable Intelligent Surface (RIS), has emerged. The RIS is an artificial planar structure made of sub-wavelength unit cells, which can be coated on any environmental object, thereby providing a cost-effective way for the implementation of ultra-massive MIMO technology. In addition, RIS is extremely flexible and can work in a wide range of frequency band, ranging from microwave to visible light. More importantly, RIS can reflect an incoming electromagnetic wave and adjust its amplitude and phase in a controllable way. As such, RIS holds the potential to revolutionize the design of future wireless networks, and hence has gained considerable research interests. However, the application of RIS in wireless communication is still in its infancy, and substantial research efforts are needed to gain a fundamental understanding.

Motivated by this, this special issue is aimed at reporting the latest and most promising research advances on key architectures, modeling, analysis, design, and implementation of RIS-empowered wireless networks, and at envisioning new research directions in this emerging field of research. The topics of interest include, but are not limited to the following:

- Physics- and electromagnetic-compliant modeling of RIS
- Channel modeling of RIS-empowered wireless networks
- Information theoretical limits of RIS-empowered wireless networks
- Transceiver design using RIS
- High order modulation design for RIS transceivers
- Channel estimation techniques for RIS-empowered wireless networks
- Resource allocation in RIS-empowered wireless networks
- Algorithms and protocols design/optimization for RIS-empowered wireless networks
- Software-defined design and implementation of RIS-empowered wireless networks
- AI-inspired control and orchestration of RIS-empowered wireless networks
- Indoor/outdoor localization in RIS-empowered wireless networks
- Distributed configuration and deployment of RIS-empowered wireless networks
- Integration of RISs with state-of-the-art wireless technologies (e.g., small cells, Massive MIMO, millimeter-wave communications, visible light communications, THz communication, free space optics, Internet of Things, drones-aided communications, energy harvesting, etc.)
- Experimental results and testbed implementations of RISs

## SCHEDULE

**Submission Deadline: August 15, 2020**

**Acceptance Notification (1st round): October 15, 2020**

**Minor Revision Due: November 15, 2020**

**Final Decision Due: November 30, 2020**

**Final Manuscript Due: December 15, 2020**

**Publication Date: February 15, 2021**

## GUEST EDITORS

Caijun Zhong, Zhejiang University, China

Shi Jin, Southeast University, China

Marco Di Renzo, CentraleSupélec, France

Jun Fang, University of Electronic Science and Technology of China, China

## SUBMISSION GUIDELINES

This feature topic “Wireless Communications with Reconfigurable Intelligent Surfaces” invites submissions of original, previously unpublished technical papers and visionary articles exploring the architecture, techniques, and applications of RIS in wireless communications. All submissions will be anonymously peer reviewed and will be evaluated on the basis of their technical content. Potential topics of interest include, but not limited to areas listed above.

Papers should be submitted in two separate .doc files (preferred) or .pdf files: 1) Main Document (including paper title, abstract, key words, and full text); 2) Title page (including paper title, author affiliation, acknowledgement and any other information related with the authors' identification) through the Manuscript Central. Please register or login at <http://cn03.manuscriptcentral.com/chinacomm>, then go to the author center and follow the instructions there. **Remember to select “Feature Topic: Wireless Communications with Reconfigurable Intelligent Surfaces, February 2021” as your manuscript type when submitting;** otherwise, it might be considered as a regular paper.

Each submission must be accompanied by the following information:

- an abstract of about 150 words
- 3-8 keywords
- original photographs with high-resolution (300 dpi or greater); eps. or tif. format is preferred; sequentially numbered references.
- sequentially numbered references. The basic reference format is: author name, “article name”, issue name (italic), vol., no., page, month, year. for example: Y. M. Huang, “pervasive in wireless heterogeneous...”, IEEE Journal on Selected Areas, vol. 27, no. 5, pp 34-50, May, 2009.
- brief biographies of authors (50-75 words)
- contact information, including email and mailing addresses

Please note that each submission will normally be approximately 4500 words, with no more than 20 mathematical formulas, accomplished by up to 10 figures and/or tables.

# Call for Papers – Feature Topic, Vol.18, No.7, 2021

## Collaborative Intelligence for Vehicular Internet of Things

Future vehicular Internet-of-Things (IoT) systems feature a large number of devices and multi-access environments where different types of communication, computing, and storage resources must be efficiently utilized. At the same time, novel services, such as cooperative autonomous driving and intelligent transport systems (ITS), that demand unprecedented high accuracy, ultra-low latency, and large bandwidth, are emerging. These services also have an extreme variance in user requirements and resource demands with respect to time, location, and context. Hence, current research is no longer confined to improving reliable communication and system operation in the presence of highly mobile vehicles, which has been the main focus in the past. It is therefore important to empower future vehicular IoT systems with advanced features, such as real-time reactive and proactive cooperation and coordination among different agents (or decision makers), including vehicles, roadside units, base stations, pedestrians, and other entities.

Recently, artificial intelligence (AI) based approaches have been attracting great interest in empowering computer systems. Some collaborative learning approaches, such as federated learning and multi-agent systems, have been used to reduce network traffic and improve learning efficiency of some smartphone applications. In vehicular IoT systems, collaborative intelligence can be achieved via an efficient collaboration among heterogeneous entities, including vehicles, edges, and cloud. This special issue will focus on the technical challenges and the synergistic effect of collaboration among heterogeneous entities and AI in enabling intelligent perception of environment, intelligent networking, and intelligent processing of big data in vehicular IoT systems. We invite researchers to contribute their original research articles that will facilitate the development of vehicular IoT based on collaborative intelligence.

### SCHEDULE

**Submission Deadline:** October 15, 2020

**Acceptance Notification (1st round):** December 5, 2020

**Minor Revision Due:** February 5, 2021

**Final Decision Due:** March 5, 2021

**Final Manuscript Due:** April 5, 2021

**Publication Date:** July 15, 2021

### GUEST EDITORS

Celimuge Wu, The University of Electro-Communications, Japan

Kok-Lim Alvin Yau, Sunway University, Malaysia

Carlos Tavares Calafate, Technical University of Valencia, Spain

Lei Zhong, Toyota Motor Corporation, Japan

### TOPICS OF INTEREST INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:

- Collaborative intelligence for sensing and perception in vehicular IoT
- Collaborative intelligence for vehicular networking
- Collaborative intelligence for task processing in vehicular IoT
- Collaborative architecture for vehicular IoT
- Collaborative learning approaches for vehicular environments
- Collaborative sensing, networking, and computing for intelligent vehicular IoT
- Security and privacy issues for collaborative intelligence in vehicular IoT
- Federated learning for vehicular IoT
- Multi-agent systems for vehicular IoT
- AI-based approaches for collaborative resource allocations in vehicular IoT

### SUBMISSION GUIDELINES

This feature topic “Collaborative Intelligence for Vehicular Internet of Things” invites submissions of high-quality original research papers in this dynamic and fast-growing field. Potential topics of interest include, but are not limited to, the areas listed above.

Papers should be submitted in two separate .doc files (preferred) or .pdf files: 1) Main Document (including paper title, abstract, key words, and full text); 2) Title page (including paper title, author affiliation, acknowledgement and any other information related with the authors’ identification) through the Manuscript Central. Please register or login at <http://mc03.manuscriptcentral.com/chinacomm>, then go to the author center and follow the instructions there. **Remember to select “Collaborative Intelligence for Vehicular Internet of Things – July Issue, 2021” as your manuscript type when submitting;** otherwise, it might be considered as a regular paper.

Each submission must be accompanied by the following information:

- an abstract of about 150 words
- 3-8 keywords
- original photographs with high-resolution (300 dpi or greater); eps. ortif. format is preferred; sequentially numbered references.
- sequentially numbered references. The basic reference format is: author name, “article name”, issue name (italic), vol., no., page, month, year. for example: Y. M. Huang, “pervateture in wireless heterogeneous...”, IEEE Journal on Selected Areas, vol. 27, no. 5, pp 34-50, May, 2009.
- brief biographies of authors (50-75 words)
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Please note that each submission will normally be approximately 4500 words, with no more than 20 mathematical formulas, accomplished by up to 10 figures and/or tables.