



Technical Committee on Transmission, Access, and Optical Systems (TAOS)

Authors: Fabrizio Granelli, Steve Hranilovic, and Walter Cerroni

Date/Time: Tuesday, May 21, 2019 (6:00pm-7:30pm)

Meeting Location: ICC 2019 – Beijing Room, Level 2, Pudong Shangri-La Hotel, Shanghai, China

Officers: Fabrizio Granelli, Chair, fabrizio.granelli@unitn.it
Steve Hranilovic, Vice-Chair, hhranilovic@mcmaster.ca
Walter Cerroni, Secretary, walter.cerroni@unibo.it

Meeting agenda:

1. Welcome and round table introduction
2. Approval of the GC 2018 TAOS Meeting Minutes, Abu Dhabi
3. Highlights and Trends
4. Distinguished Presentation on "UAVs and 5G" by Dr. David Lopez-Perez (Nokia Bell-Labs)
5. Distinguished Presentation on "MEC for 5G" by Prof. Rose Hu (Utah State U.)
6. Conferences and Activities update
7. Awards with presentations

The meeting was called to order at 6:00pm

Participants (17)

- Walter Cerroni, U. Bologna, Italy
- Filippo Cugini, CNIT, Italy (remote)
- Tarek El-Bawab, Jackson State U., USA
- Gang Feng, U. Electrical Science and Technology of China
- Fabrizio Granelli, U. Trento, Italy
- Tao Han, U. North Carolina Charlotte, USA
- Rose Hu, Utah State U., USA
- Emily Lam, Boston U., USA
- David Lopez-Perez, Nokia Bell Labs, Ireland
- Athanassios Manikas, Imperial College London, UK
- Paolo Monti, Chalmers U. Technology, Sweden
- George Rouskas, North Carolina State U., USA

- Daniel So, U. Manchester, UK
- Yao Sun, U. Electrical Science and Technology of China
- Zhuqing Tang, Imperial College London, UK
- Lei Zhang, U. Glasgow, UK
- Ning Zhang, Texas A&M U. Corpus Christi, USA

1. Welcome and round table introduction

The Chair, Fabrizio Granelli, welcomed all participants and presented the meeting agenda. He highlighted that, as a newly appointed TAOS Chair, he would like to run the meeting in a slightly different way from the past. In order to increase attendance, the meeting will host technical presentations on hot topics of interest for the TAOS community. A motion was made by Walter Cerroni to approve the meeting agenda, which was seconded by George Rouskas. Then the attendees introduced themselves (see participant list above). The attached slides were presented by the Chair and discussed item-by-item.

2. Approval of the GC 2018 TAOS Meeting Minutes, Abu Dhabi

A motion was made by George Rouskas to approve the minutes of the previous meeting, the draft of which was made available on the TAOS website (<http://taos.committees.comsoc.org/meetings>). The motion was seconded by Tarek El-Bawab and the minutes were approved unanimously without further remarks.

3. Highlights and Trends

The Chair informed that TAOS continues to sponsor, as part of Globecom/ICC conferences:

- SAC Track on «Access Networks and Systems» (ANS)
- Symposium on «Optical Networks and Systems» (ONS)
- Symposium on «Green Communications Systems and Networks» (GCSN)

In addition, TAOS offer endorsement of other technical events, such as workshops co-located with ICC/GC or standalone conferences.

The Chair pointed out the need to frequently coordinate with Symposium TPC co-chairs nominated by TAOS in order to update the list of topics of interest included in the call for papers. This will also allow to keep track of hot and emerging topics, and is one of the reasons for inviting technical talks at TAOS meetings.

For the ANS SAC Track at ICC 2019, TAOS nominated as TPC Co-Chair Vidhya Sridhar. The ANS Track received 12 submissions, of which 5 were accepted. The Chair remarked that the ANS SAC Track has been receiving a low number of submissions recently, especially at ICC 2019 and ICC 2018. Athanassios Manikas commented that the ANS Track Chair should increase the advertising actions for the call for papers, as this was not properly done recently. Fabrizio Granelli added that also the list of topics is outdated and should be renewed.

The Chair also announced that the GITC decided to cancel the ASN Track due to the low number of submissions, while other Tracks on emerging topics can attract more papers. Therefore, ICC 2021 will not have an ANS Track.

The ONS Symposium, instead, was not doing bad: at ICC 2019, 80 papers were submitted and 31 were accepted. None of the Co-Chairs at ICC 2019 was nominated by TAOS. TAOS used to nominate the ONS Co-Chairs together with other TCs, typically the Optical Networks TC (ONTC). However, the new rules enforced by GITC open the nomination of Symposium Co-Chairs to any other TC. Therefore, our TC cannot always expect to have a TAOS-nominated Co-Chair for the endorsed symposia, especially for the ONS Symposium which is usually run by two Co-Chairs. The ONS Symposium should anyway increase the number of submissions, which is challenging due to conflicts with other venues.

The GCSN Symposium at ICC 2019 was co-chaired by Daniel So, nominated by TAOS. It received 100 submissions, out of which 40 papers were accepted. The numbers are in line with the past performance of the GCSN Symposium.

ICC 2019 hosted the 5th Workshop on Optical Wireless Communications (OWC), co-chaired by Mauro Biagi, University of Rome "La Sapienza", Italy (an active TAOS member), Zabih Ghassemlooy, Northumbria University, Newcastle, UK, and Anna Maria Vegni, University of Roma TRE, Italy. The OWC Workshop has always been a successful event. As such, it would be good to consider if it is possible to merge it with the ONS Symposium.

4. Distinguished Presentation on "UAVs and 5G" by Dr. David Lopez-Perez (Nokia Bell-Labs)

The presentation by David Lopez-Perez focused on experiments on UAV control using LTE. The tests showed that wireless connection is good up to 40 meters, then the link to the drone loses quality. The uplink from high altitudes is a problem due to many base stations being visible and causing interference. 5G wireless technology can help, as base stations can be equipped with large antenna arrays (massive MIMO) with spatial separation to avoid interference. Otherwise, drones must not fly above 40 m. Simulation results showed the benefits of adopting massive MIMO technology.

5. Distinguished Presentation on "MEC for 5G" by Prof. Rose Hu (Utah State U.)

Rose Hu presented possible applications for Multi-access Edge Computing (MEC), including edge content delivery, where multimedia content is cached at the network edge to reduce latency. Different approaches can be used: local computing, partial or total offloading. A case study was presented on UAV-aided MEC. Computation efficiency is used to measure how much to offload. Open issues were discussed for MEC in general, as well as open problems in computation offloading.

6. Conferences and Activities update

The Chair reported TAOS Co-Chair nominations for the following upcoming events:

- IEEE Globecom 2019 (Hawaii)
 - SAC-ANS: no TAOS representative
 - ONS: Mohan Gurusamy (National University of Singapore)
 - GCSN: Kyng Sup Kwak (Inha University, Korea)
- IEEE ICC 2020 (Dublin)
 - SAC-ANS & PLC: Fabrizio Granelli (University of Trento, Italy)
 - ONS: no TAOS representative
 - GCSN: Taisir Elgorashi (University of Leeds, UK)
- IEEE Globecom 2020 (Taipei)
 - SAC-ANS: Ahmed E. Kamal (Iowa State University, USA)
 - ONS: Abdelmoula Bekkali (KDDI Research Inc., Japan)
 - GCSN: Daniel So (University of Manchester, U.K.)
- IEEE ICC 2021 (Montreal)
 - SAC-ANS: Michael McGarry (University of Texas at El Paso, USA) – pending approval
 - ONS: Carla Raffaelli (University of Bologna, Italy) – pending approval
 - GCSN: Jaafar Elmirghani (University of Leeds, U.K.) – pending approval

Since the GICT decided to cancel SAC-ANS for ICC 2021, the nomination was not approved. Also the nomination for ONS was not approved, as the GITC decided to select nominees from other TCs. The next round of nominations for IEEE Globecom 2021 was going to open soon.

Other TC Activities mentioned by the Chair:

- TAOS supports members for elevation to IEEE Senior and Fellow positions
- TAOS provides endorsement for Distinguished Lecturers
- TAOS offers support to special issues and other conferences

7. Awards with presentations

The TAOS Officers were proud to present an Outstanding Service Award to Athanassios Manikas, for his contribution as TAOS Chair in 2017-2018.

Then the following awards were presented to the best papers accepted in symposia sponsored by TAOS:

- TAOS ICC 2019 GCSN Symposium Best Paper Award
 - Paper title: “Joint Computation and Communication Resource Allocation for Energy-Efficient Mobile Edge Networks”
 - Authors: Johnson Opadere, Qiang Liu, Ning Zhang, Tao Han
- TAOS ICC 2019 SAC-ANS Track Best Paper Award
 - Paper Title: “User Access Control and Bandwidth Allocation for Slice-based 5G-and-beyond Radio Access Networks”
 - Authors: Yao Sun, Gang Feng, Lei Zhang , Mu Yan, Shuang Qin, Muhammad Ali Imran

- TAOS GC 2018 ONS Symposium Best Paper Award
 - Paper title: “Impact of Receiver FOV and Orientation on Dense Optical Networks”
 - Authors: Iman Abdalla, Michael Rahaim, Thomas DC Little
 - The award was presented to Emily Lam on behalf of the authors
- TAOS GC 2018 GCSN Symposium Best Paper Award
 - Paper title: “Energy-Efficient Resource Allocation in NOMA Heterogeneous Networks with Energy Harvesting”
 - Authors: Haijun Zhang, Mengting Feng, Keping Long, George K. Karagiannidis, Victor C.M. Leung

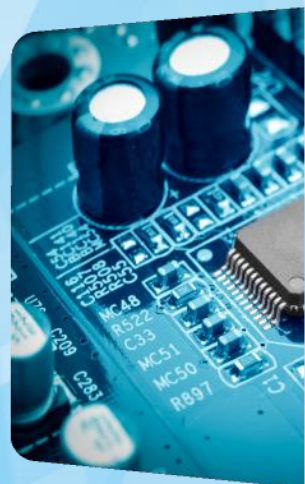
The awardees that were present gave a short technical presentation of their work.

8. Any Other Business

None

Tarek El-Bawab moved to adjourn the meeting. Athanassios Manikas seconded. The meeting was adjourned at 7:30pm.

Attachments: 1. Meeting Slides



Transmission, Access and Optical Systems TC

Meeting at ICC 2019

Fabrizio Granelli (Chair)

Agenda

- ▶ Welcome and round table introduction (5 min)
- ▶ Approval of the GC 2018 TAOS Meeting Minutes, Abu Dhabi (5 min)
- ▶ Highlights and Trends (15 min)
- ▶ Distinguished Presentation (15 min) on "UAVs and 5G" by Dr. David Lopez-Perez (Nokia BellLabs)
- ▶ Distinguished Presentation (15 min) on "MEC for 5G" by Prof. Rose Hu (Utah State U.)
- ▶ Conferences and Activities update (15 min)
- ▶ Awards w/ presentations (20 min)

Minutes approval

Meeting at IEEE Globecom 2018

- ▶ Available on the website:

<http://taos.committees.comsoc.org/meetings/>



Technical Committee on Transmission, Access, and Optical Systems (TAOS)

Authors: Athanassios Manikas, Fabrizio Granelli and Steve Hranilovic

Date/Time: Tuesday December 11, 2018 (12:00-13:15)

Meeting Location: Globecom 2018 – Abu Dhabi National Exhibition Center (ADNEC),
Capital Suite 8., Abu Dhabi, UAE

Officers: Athanassios Manikas, Chair, a.manikas@imperial.ac.uk
Fabrizio Granelli, Vice-Chair, fabrizio.granelli@unit.it
Steve Hranilovic, Secretary, hranilovic@mcmaster.ca

Meeting was called to order at 12:15 (15min late due to issues related to telcon setup)

Participants (18)

- Mauro Biagi, U. Roma, Italy
- Fabrizio Granelli, U. Trento, Italy
- Walter Ceroni, U. Bologna, Italy (telcon)
- Jaafar Elmighani, University of Leeds, UK
- Steve Hranilovic, McMaster U., Canada
- Athanassios Manikas, Imperial College London, UK
- Subha Sharmo, NTU Singapore, Singapore
- Paschalis Tsiaflakis, Nokia Bell Labs, Belgium
- Fang Yang, Tsinghua University, China
- Diana Dawoud, University of Surrey, UK
- Stefano Bregni, Politecnico Milano, Italy
- Taisir Elgorashi, U. Leeds, UK
- Mohan Gurusamy, Nat. U. Singapore, Singapore
- Mamoun Guenach, Ghent U., Belgium (telcon)
- Abdelmoula Bekkali, Waseda U., Japan (telcon)

Highlights and Trends

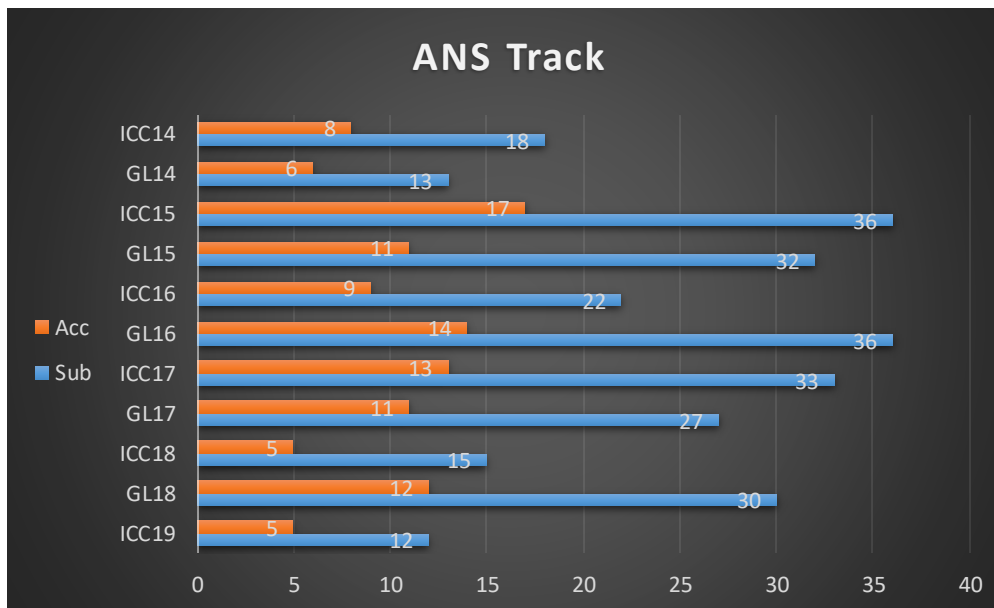
Sponsored Symposia

- ▶ TAOS TC consistently sponsors three symposia:
 - SAC Track on «Access Networks and Systems»
 - Symposium on «Optical Networks and Systems»
 - Symposium on «Green Communications Systems and Networks»
- ▶ Moreover, TAOS TC technically endorses several other technical events
 - Co-located w/ ICC and GC, or stand-alone
- ▶ Need to coordinate with Symposium TPC Co-Chairs and update the topics to keep tracking hot-topics

Highlights and Trends

Symposia Statistics

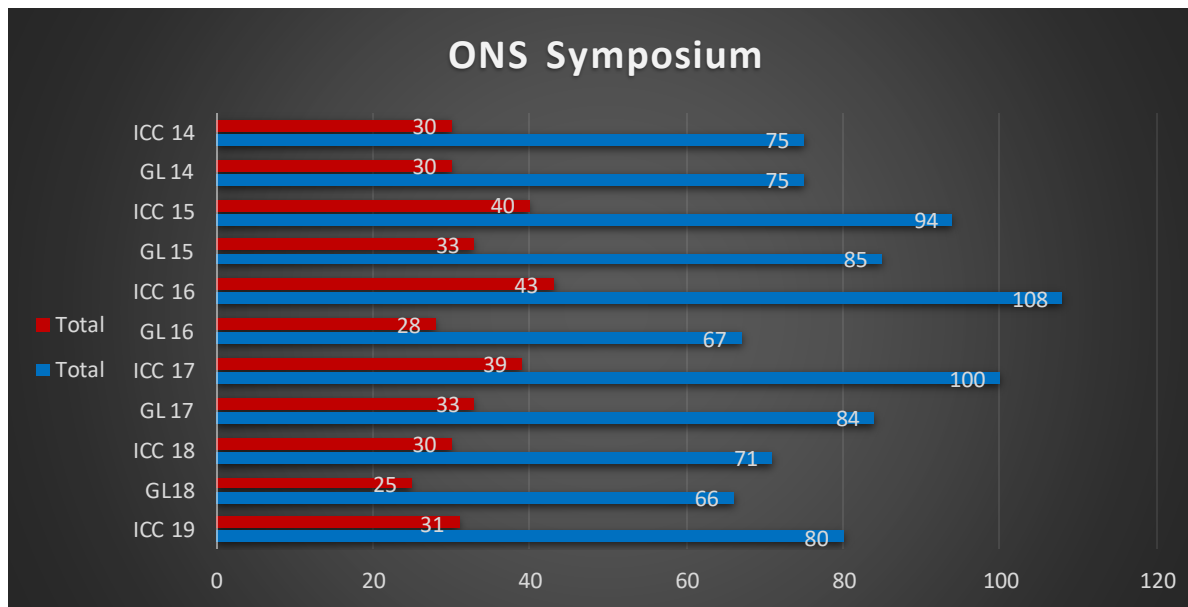
- ▶ SAC - Access Networks and Systems Track (TAOS nominated TPC Co-Chair: Vidhya Sridhar)



Highlights and Trends

Symposia Statistics

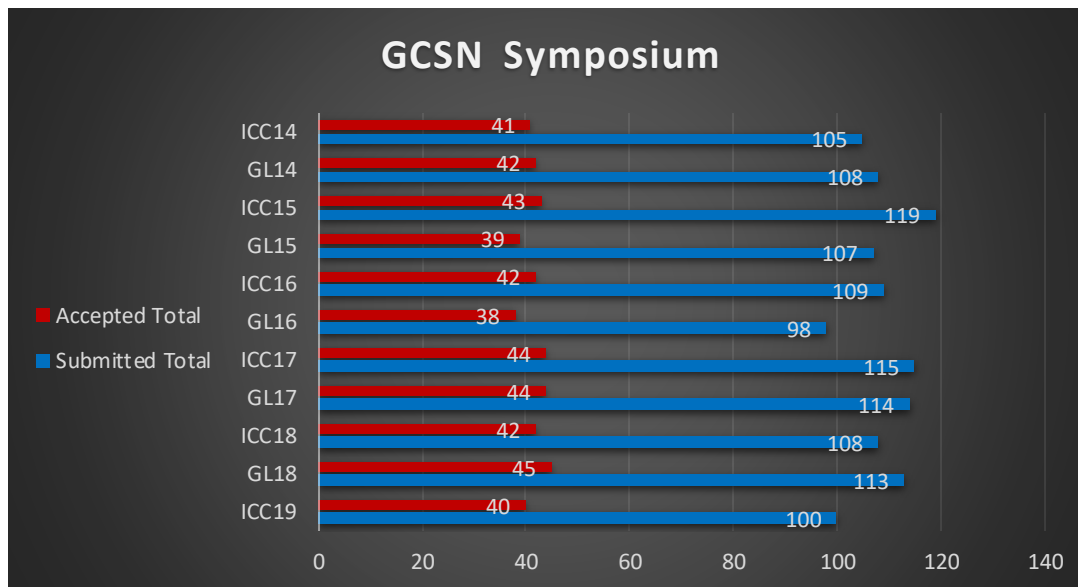
- ▶ Optical Networks and Systems Symposium (no TAOS representative)



Highlights and Trends

Symposia Statistics

- ▶ Green Communication Systems and Networks Symposium (TAOS nominated TPC Co-Chair: Daniel So)



Highlights and Trends

TAOS TC-sponsored Workshops Statistics

- ▶ ICC 19 hosts the 5th workshop on Optical Wireless Communications
- ▶ Co-Chairs :
 - Mauro Biagi, Sapienza Univ. of Rome, Italy (TAOS)
 - Zabih Ghassemlooy, Northumbria Univ., Newcastle, UK
 - Anna Maria Vegni, Univ. of Roma TRE, Italy

Distinguished Presentations

To foster technical discussion within the TC

- ▶ "UAVs and 5G" by Dr. David Lopez-Perez (Nokia BellLabs)
- ▶ "MEC for 5G" by Prof. Rose Hu (Utah State U.)

Conferences and Activities Update

Upcoming Events

- ▶ IEEE Globecom 2019 (Hawaii)
 - SAC-ANS: *** no TAOS representative ***
 - ONS: Mohan Gurusamy (National University of Singapore)
 - GCSN: Kyng Sup Kwak (Inha University, Korea)

- ▶ IEEE ICC 2020 (Dublin)
 - SAC-ANS & PLC: Fabrizio Granelli (University of Trento, Italy)
 - ONS: *** no TAOS representative ***
 - GCSN: Taisir Elgorashi (University of Leeds, UK)

Conferences and Activities Update

Upcoming Events

- ▶ IEEE Globecom 2020 (Taipei)
 - SAC-ANS: Ahmed E. Kamal (Iowa State University, USA)
 - ONS: Abdelmoula Bekkali (KDDI Research Inc., Japan)
 - GCSN: Daniel So (University of Manchester, U.K.)

- ▶ IEEE ICC 2021 (Montreal)
 - SAC-ANS: Michael McGarry (University of Texas at El Paso, USA) – pending approval
 - ONS: Carla Raffaelli (University of Bologna, Italy) – pending approval
 - GCSN: Jaafar Elmirghani (University of Leeds, U.K.) – pending approval

- ▶ Next nominations will open soon for IEEE Globecom 2021

Other TC Activities

Membership and Publication Support

- ▶ TAOS TC supports members for elevation to IEEE Senior and Fellow positions
- ▶ Distinguished Lecturers endorsement
- ▶ Support to special issues and conferences

Awards

TAOS TC Awards

- ▶ ICC 2019 Symposium: Green Communications Systems and Networks
- ▶ Paper title: «Joint Computation and Communication Resource Allocation for Energy-Efficient Mobile Edge Networks»
- ▶ Authors:
- ▶ Johnson Opadere, Qiang Liu, Ning Zhang, Tao Han

Awards

TAOS TC Awards

- ▶ ICC 2019 Symposium: SAC - ANS
- ▶ Paper Title: «User Access Control and Bandwidth Allocation for Slice-based 5G-and-beyond Radio Access Networks»
- ▶ Authors:
- ▶ Yao Sun, Gang Feng, Lei Zhang , Mu Yan , Shuang Qin, Muhammad Ali Imran

Awards

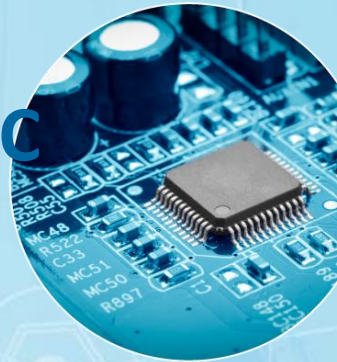
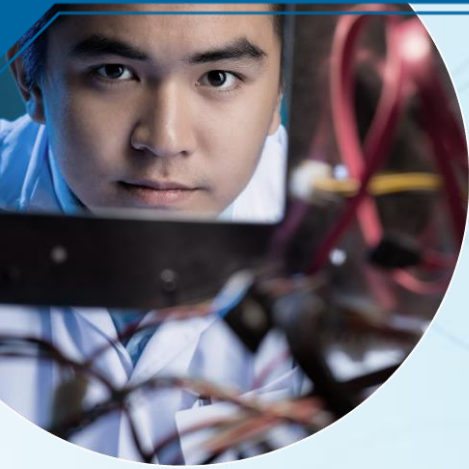
TAOS TC Awards

- ▶ GL 2018 Symposium on. "Optical Networks and Systems" (ONS)
- ▶ Paper title: «Impact of Receiver FOV and Orientation on Dense Optical Networks»
- ▶ Authors:
- ▶ Iman Abdalla, Michael Rahaim, Thomas DC Little

Awards

TAOS TC Awards

- ▶ GL 2018 Symposium on "Green Communications Systems and Networks" (GCSN)
- ▶ Paper title: «Energy-Efficient Resource Allocation in NOMA Heterogeneous Networks with Energy Harvesting»
- ▶ Authors:
- ▶ Haijun Zhang, Mengting Feng, Keping Long, George K. Karagiannidis, Victor C.M. Leung.



Transmission, Access and Optical Systems TC

Thank you!