

IEEE Communications Society Quantum Communications and Information Technology - ETC (QCIT-ETC)

Meeting at Globecom 2019

Room: Paniolo III

Date/Time: Dec 12, 2019, 11am – 1pm

Waikoloa, HI, USA

Mission

The Emerging Technical Committee (ETC) on Quantum Communications and Information Technology (QCIT) promotes all types of communications theory and engineering to foster quantum technology. Our field of interests start from the basic radio frequency technology, addresses aspects of control instrumentation, error correction, coding theory, system architecture, simulation, algorithms, and eventually applications. The committee will connect people from Industry and Academia by supporting conferences, symposia, technical sessions, publications, etc., where information is exchanged within the scope of interest of the QCIT-ETC.

Meeting Agenda

1. Approval of the Agenda
2. Welcome / Introduction
3. Approval of Previous Meeting Minutes
4. QCIT-ETC Awards
5. Report on ETC Technical Activity Council Meeting
6. Report on Workshops & Conferences
7. Report on Keynotes & Invited Talks
8. Report on Publications & Future Events
9. Standards Liaison
10. New Business Items
11. Next QCIT-ETC Meeting
12. Adjourn

2. Welcome / Introduction I

QCIT-ETC Officers

Chair: Lajos Hanzo (U. of Southampton, UK)

Vice-Chair: Peter Mueller (IBM Zurich Research Lab, Switzerland)

Secretary: Andrea Conti (U. of Ferrara, Italy)

Standards and Media: Michael Ng (U. of Southampton, UK)

Membership: 450+

2. Welcome / Introduction II

The QCIT-ETC website:

- <http://qcit.committees.comsoc.org/>

- Two mail distribution lists:

- qcit@comsoc.org

Internal announcements only

ICC, Globecom, Committee meetings like today, Awards

- qcit-announce@comsoc.org

CFP email distribution list

Open to all signed-up members to distribute QCIT related CFPs

Sign-up: Send “join QCIT(-ANNOUNCE)” message to list@comsoc.org

Unsubscribe: Send “SIGNOFF QCIT” message to list@comsoc.org

3. Approval of Previous Meeting Minutes

The last QCIT meeting was held at IEEE ICC 2019 in Shanghai.

The meeting minutes and slides are published on the QCIT URL (use tab “Meetings”):

<http://qcit.committees.comsoc.org/>

4. QCIT-ETC Awards

The QCIT-ETC award program will start as soon as we receive approval from the ETC TAC.

Acting Awards Committee Chair is the elected QCIT-ETC Chair.

Members of the Awards Committee will be the Awards Committee Chair, three QCIT officers, one external member.

Calls for nominations as defined in the QCIT-ETC Policies & Procedures will be sent out via our distribution list. For details, see QCIT URL:

<http://qcit.committees.comsoc.org/>

5. Report on ETC-TAC Meeting

As presented at Globecom 2018, the ETC reviewed the recertification reports carefully, and it was great seeing all the energetic activity within so many of the ETIs. Based on these reports and our discussions, the following decisions were made by the ETC.

Elevate to TC:

Smart Grid Communications

Molecular, Biological and Multiscale Communications

Continue as ETI for 2 years, re-evaluate then (possibly after 1 year):

Backhaul/Fronthaul Networking and Communications

Network Intelligence

Quantum Communications & Information Technology

Disband, no longer an ETI, mainly due to lack of recent/current activity:

IoT

SDN/NFV

5. Report on ETC-TAC Meeting

From ETC-TAC Meeting at Globecom 2018 - output of the recertification

Overall, our evaluation was positive. This is an important topic and has some very good people involved and is making good progress. We still think it is too early to discuss elevation to a full TC, however. We'd like to set a goal of doing this in 2 years, or even 1 year if you think activities can be ramped up a lot.

Some examples of things we'd like to see (and may be in progress already):

- More knowledge dissemination, including tutorials and accessible materials. A great idea could be to do a ComSoc Best Readings, and I think you might be doing one.
- Special issues (Magazine, JSAC, etc.)
- Broader membership, and activities by more members beyond the officers (also a breakdown of where these members are, industry vs. academia, etc.)
- Connections to communities beyond SP, e.g. sensing and computing and possibly physics or information theory

We'd love to see this ETI become the key hub of knowledge and information for the quantum communications field.

6. Report on Workshops & Conferences

Since last meeting:

5th edition of our Workshop on Quantum Communications and Information Technology (QCIT19) at IEEE Globecom 2019

Other workshops and conferences reported in the minutes

7. Report on Keynotes & Invited Talks

Keynotes and Invited Talks reported in the minutes

At ICC 2019, tutorial TUT-06: *Quantum Internet: Wiring the Weirdness* by A.S. Cacciapuoti and M. Caleffi from University of Naples Federico II

Quantum Track at IEEE ICASSP'19, Brighton, UK

Keynote lecture by L. Hanzo on Quantum communications at ISWCD'19 Oulu, Finland

Keynote by M.Z. Win on “Multiparty quantum state transmission,” at the Brazilian Symposium on Telecommunications and Signal Processing, Sep. 2019

IEEE Signal Processing Society Webinar by L. Hanzo

- URL: <https://rc.signalprocessingsociety.org/webinars/SPSWEB00373.html>

QCIT Tutorials accepted for ICC 2020 & ICASSP'2020

8. Report on Publications & Future Events

Please use the QCIT-ANNOUNCE distribution list to send your CFPs and report your special issues, book chapters, and so on.

QCIT is actually looking for a member who would be willing to serve in the position of an Appointed Representative of Publications. If you are interested, please contact the newly elected officers.

- The QCIT ETC has contributed to the formation of the new IEEE-level Open-Access journal, namely the IEEE TRANSACTIONS ON QUANTUM ENGINEERING;
- Upcoming JSAC special issue on *Advances in Quantum Communications, Computing and Cryptography*, by Soon Xin Ng, Lajos Hanzo, Peter Mueller, Andrea Conti, Gui-Lu Long, Akbar Sayeed, Jinhong Yuan: **63 submissions**
- A new IEEE ComSoc Communications Magazine Special Section has been proposed and it is under consideration by the EIC;

9. Standard Liaison

The QCIT-ETC is supporting standards work within the field.

IEEE SA - 1913 - Software-Defined Quantum Communication

<http://standards.ieee.org/develop/project/1913.html>

IEEE SA - 1913 - Software-Defined Quantum Communication IEEE.org IEEE Xplore Digital Library IEEE Standards...

Liaison: [Steven Bush \(bushsf@research.ge.com\)](mailto:bushsf@research.ge.com)

IEEE SA - 7131 - Standard for Quantum Computing Performance Metrics & Performance Benchmarking

<http://standards.ieee.org/develop/project/7131.html>

IEEE SA - 7131 - Standard for Quantum Computing Performance Metrics & Performance Benchmarking IEEE.org IEEE Xplore...

Liaison: [Peter Mueller \(pmu@zurich.ibm.com\)](mailto:pmu@zurich.ibm.com)

IEEE SA - 7130 - Standard for Quantum Computing Definitions

<http://standards.ieee.org/develop/project/7130.html>

IEEE SA - 7130 - Standard for Quantum Computing Definitions IEEE.org IEEE Xplore Digital Library IEEE...

Liaison: [Peter Mueller \(pmu@zurich.ibm.com\)](mailto:pmu@zurich.ibm.com)

10. New Business Items

The QCIT ETC is contributing to the formation of the IEEE-level Quantum Initiative:
<https://quantum.ieee.org/about>

QCIT/ComSoc have become the official sponsor of the IEEE Quantum Week, 12 – 16 Oct. 2020, Denver <https://qce.quantum.ieee.org/>

NAE report <https://www.nap.edu/catalog/25196/quantum-computing-progress-and-prospects>

Worldwide Large Regional Programs

- US IARPA and others
- China Secure Backbone
- EU Flagship and Quanterra

European Efforts:

- European Flagship Program on Quantum Technologies

11. Next QCIT-ETC Meeting & Workshop

The next IEEE ComSoc's Quantum Communications and Information Technology ETC (QCIT-ETC) meeting will be held at

IEEE ICC 2020
June 7-11, 2020
Dublin, Ireland

12. Adjourn

Technical presentations

Thank you for attending!