

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

Meeting at ICC 2022

Room: *Virtual*

Date/Time: April 8, 2022, 9am – 11am EST

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. Welcome and Opening
2. Invitation to Globecom 2022 and IEEE Quantum Week 2022
3. QCIT Talks
4. Approval of Previous Meeting Minutes
5. Report on ETC Meeting
6. Report on Workshops & Conferences
7. Report on Tutorials, Keynotes & Invited Talks
8. Report on Publications & Future Events
9. Standards Liaison
10. New Business Items
11. Next QCIT-ETC Meeting
12. Adjourn

1. 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+

1. 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

2. Globecom 2022 / IEEE Quantum Week 2022

Next Quantum Track at SAC Symposium

Rio de Janeiro, Brazil, 4.-8. December 2022

<https://globecom2022.ieee-globecom.org/authors/call-symposium-papers>

Paper submission site: <https://edas.info/N28496>

Deadline for paper submission: 15 April 2022

Date for notification: 25 July 2022

Deadline for final paper submission: 1 September 2022

Invitation to participate to the IEEE Quantum Week 2022

submission of technical papers open until April 29, 2022

3. QCIT Talks

- Prof. Kwang-Cheng (K.-C.) Chen, University of South Florida

“Introduction to Quantum Communications, Networking, and Sensing”

Abstract - Applying quantum technology to revolutionize communications and networking emerges as a new technological frontier. Quantum mechanics dealing with microscopic world can intuitively different from the classic macroscopic world, and must rely on mathematical and physical inductions to understand. From the engineering point of view and background knowledge, this tutorial supplies the comprehensive knowledge in

- brief introduction of quantum mechanics, quantum entanglement and logic gates
- quantum teleportation, swapping, dense coding, quantum copier
- quantum optical communications
- quantum networks
- quantum metrology, detection/illumination, sensing and imaging

4. Approval of Previous Meeting Minutes

The most recent QCIT meeting was held at IEEE Globecom 2021.

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

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

5. Report on ETC-TAC Meeting

Nothing relevant before this meeting

6. Report on Workshops & Conferences

1. ComSoc WTC Webinar on April 22, 2021 – “On the Road From Classical to Quantum Communications...” – Lajos Hanzo, University of Southampton, UK.
2. 15th of Oct. 2021: The 1st Imperial Workshop on Intelligent Communications: Introduction to Quantum Communications by Lajos Hanzo
3. 14th of April 2022: Introduction to Quantum Communications by Lajos Hanzo,
<https://www.comsoc.org/education-training/training-courses/online-courses/2022-04-introduction-quantum-communications>
4. 20th of May 2022 at ICC'22: On the Road to Quantum Communications by KC Chen & Lajos Hanzo

7. Report on Keynotes & Invited Talks

Keynotes and Invited Talks reported in the minutes

Since the last meeting:

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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;
- A new IEEE ComSoc Communications Magazine Special Section has been proposed and it is under consideration by the EIC;
- IEEE Network Special Issue on Quantum Communications and Networking

<https://www.comsoc.org/publications/magazines/ieee-network/cfp/quantum-communications-and-networking>

The deadline of paper submission is 20 April 2022

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)

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)

10. New Business Items

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

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 Globecom 2022

12. Adjourn

Thank you for attending!