

SCURTA SELECTIE (relativ) CRONOLOGICA DE EVENIMENTE 2015-2016

10 Ani de Quantum

Press Release

EDUCATION /

In 2015 au avut loc primele discutii despre aprofundarea domeniului cuantic si tot atunci au fost sustinute in Departamentul de Calculatoare, al universitatii noastre, primele lucrari de licenta/dizertatie in domeniul tehnologiilor cuantice.

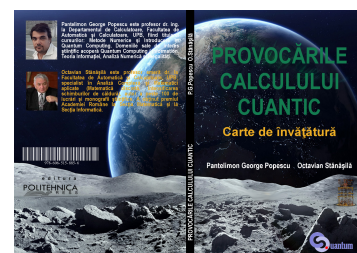
EDUCATION /

In 2017 **POLITEHNICA Bucuresti a introdus primul curs complet de calcul cuantic la nivel national - Introduction to Quantum Computing** in cadrul Departamentului de Calculatoare al Facultatii de Automatica si Calculatoare. [acest curs a fost tinut pentru cativa ani in paralel si pentru Facultatea de Electronica si Telecomunicatii]



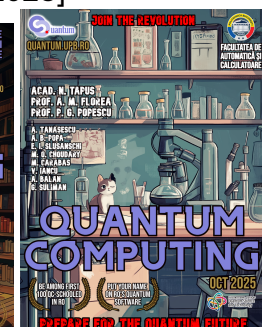
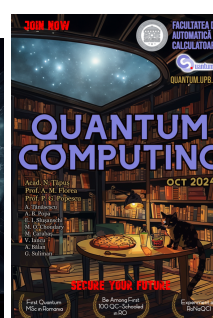
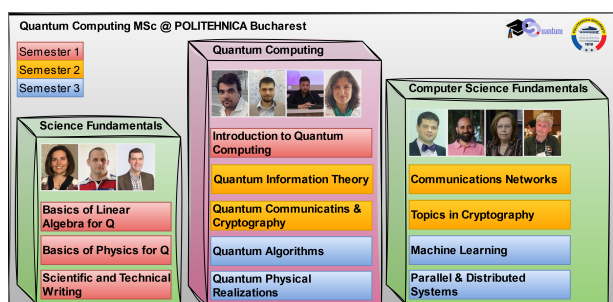
EDUCATION /

In 2019 s-a publicat **primul manual de calcul cuantic din Romania - Provocarile Calculului Cuantic**, avand coautor pe marele profesor Octavian Stanasila. [PGPopescu, ONStanasila, Provocarile Calculului Cuantic (The Challenges of Quantum Computing), Ed. Politehnica Press, 2019, ISBN 978-606-515-885-6]



EDUCATION /

In 2022 a fost aprobat de catre ARACIS, iar in 2023 a fost lansat, **primul program de master din Romania in domeniul Quantum Technologies - Quantum Computing MSc la POLITEHNICA Bucuresti** si care a fost al treilea in lume in Quantum Computing, intr-o plaja de ~55 de programe similare in QT. [[Quantum Technology Monitor](#) - McKinsey & Company, April 2023]

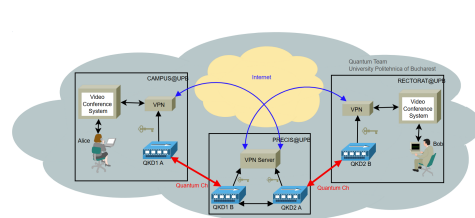


RESEARCH /

In 2022 s-a primit **un review foarte bun** din partea Comisiei Europene pentru proiectul, in valoare de 10 mil euro, **Romanian National Quantum Communication Infrastructure - RoNaQCI** pe care POLITEHNICA Bucuresti l-a coordonat: *"The successful implementation of the project will **place Romania in a strong position in the area of quantum communication**. Apart from the network deployment itself, a particularly valuable element is the staff development plan aimed especially at young specialists and network users. **The proposal will ensure the sustainability of the development of quantum technologies in Romania and contribute to the reinforcement of the digital supply chain in the EU.**"* (review of EC), iar proiectul a inceput la 1 ianuarie 2023.

INFRASTRUCTURE,
SOFTWARE /
POLITEHNICA

In ianuarie 2023 s-a construit **prima retea de distributie cuantica de chei criptografice (Quantum Key Distribution - QKD) din Romania**, integrata total in infrastructura de comunicatii a universitatii noastre. Iar in iunie 2023 au urmat lansarea primului **Transfer Sigur de Fisiere** si prima **Video Conferinta peste un canal VPN PostQuantum** din Romania folosind chei criptografice distribuite cuantic prin reteaua de QKD din POLITEHNICA Bucuresti.



12-15 MAY 2025
@ POLITECNICA

EUROPEAN COMMISSION
EUROPEAN UNION

QUANTUM TECHNOLOGIES

BIG DATA

AI FOR QUANTUM

QUANTUM

BIOQUANT

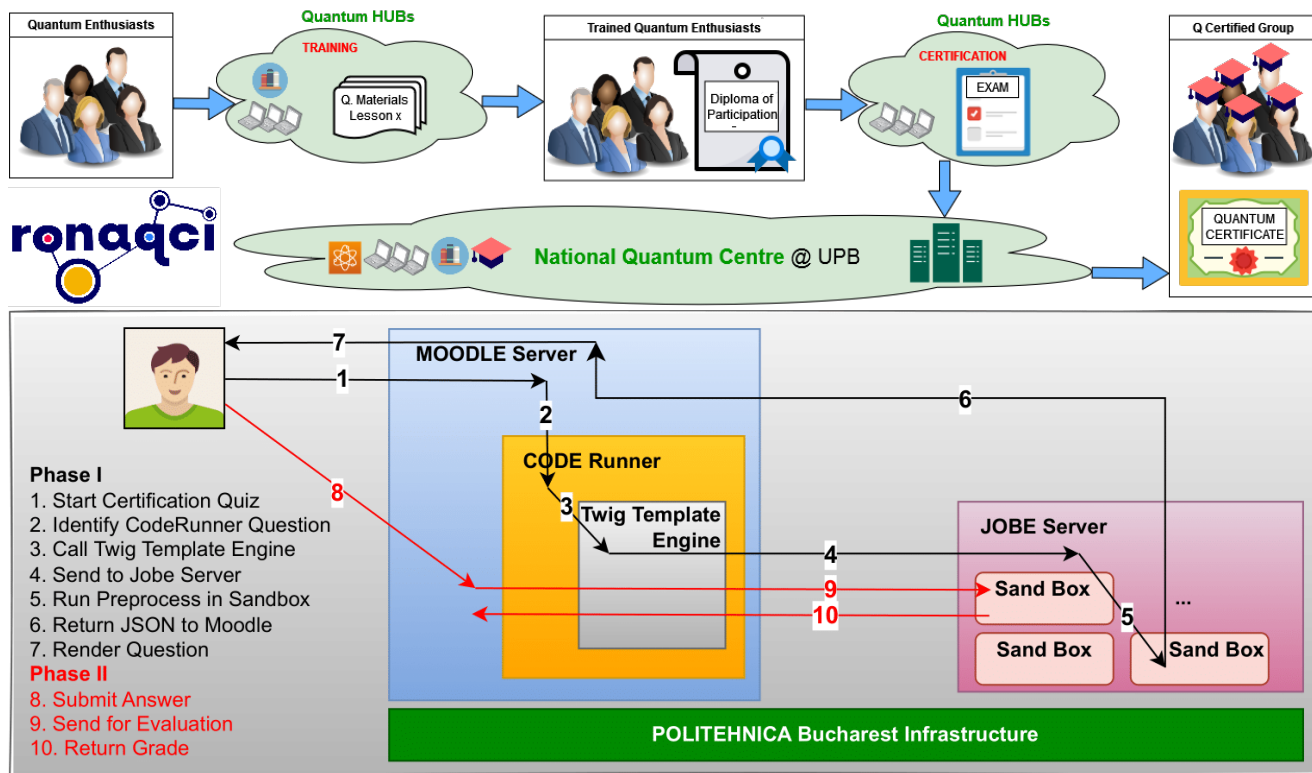
EUROPEAN COMMISSION
EUROPEAN UNION

LEARN QUANTUM
AND SECURE YOUR FUTURE

REGISTER NOW

ALL ROADS LEAD TO QUANTUM





EDUCATION /
RoNaQCI

In 2024 s-a publicat cartea **Basic Quantum Knowledge**, in format Color Magazine, coordonata de POLITEHNICA Bucuresti, fara autor nominalizat, si care a fost distribuita gratuit in Europa la toate evenimentele la care s-a participat si care a fost foarte apreciata, in special datorita usurintei cu care se prezinta anumite concepte grele din domeniul tehnologiilor cuantice. [Basic Quantum Knowledge, Ed. Politehnica Press, 2024, ISBN: 978-606-9608-88-3]

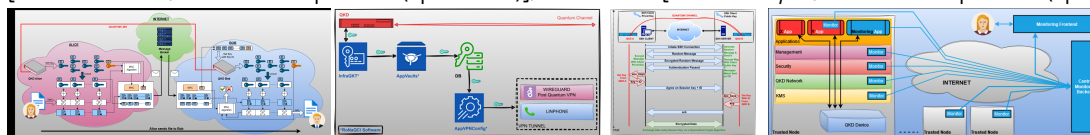


RESEARCH /

In perioada 2018-2025, echipa de quantum din **POLITEHNICA Bucuresti** a publicat **articole importante in domeniul tehnologiilor cuantice**, dintre care amintim aici de seria de articole despre **Entanglement Distribution** (cateva publicate in trust-ul Nature: [Optimal entanglement distribution within a multi-ring topology](#) 2025, [Optimal and scalable entanglement distribution over crossbar quantum networks](#) 2024, [Optimal quantum network decongestion strategies](#) 2023, etc.). Mai amintim aici si articolul care a descris pentru prima oara comportamentul retelelor mari de QKD - [Optimal key forwarding strategy in QKD behaviours](#) 2024.

SOFTWARE /
Partial RoNaQCI

In perioada 2024-2025 s-au lansat oficial o serie de **Quantum Software** in regim open source, sub licenta Apache 2.0, semnate de POLITEHNICA Bucuresti si care au fost **puse la dispozitia consorțiilor si tarilor din Europa implicate in constructia European Quantum Communication Infrastructure – EuroQCI**. Mentionam aici urmatoarele: QKD Unconditionally-Secure File Transfer [Date: July 1st, 2024. License: Apache 2.0 (Open Source)]; QKD VPN [Date: July 1st, 2024. License: Apache 2.0 (Open Source)]; QKD Get Key Tool (QKD-GKT) [Date: July 1st, 2024. License: Apache 2.0 (Open Source)]; QKD Vault Key Aggregator [Date: October 31st, 2024. License: Apache 2.0 (Open Source)]; qSSH [Date: October 31st, 2024. License: Apache 2.0 (Open Source)]; QKD-MonDash [Date: January 1st, 2025. License: Apache 2.0 (Open Source)];



In primavara 2025, echipa de quantum din POLITEHNICA Bucuresti a propus o **Politica Internationala despre scalabilitatea EuroQCI**. **Propunerea Romaniei a fost acceptata de EC, de PETRUS si HADEA si a impactat peste 25 de state membre din EU si de peste 19 consortii care au aplicat la CEF call** – etapa a doua din EuroQCI. Aceasta interventie a Romaniei semnata de POLITEHNICA Bucuresti care s-a numit **Preparing for the CEF call** (distilata intr-un document de o pagina) a fost dezbatuta de doua ori de catre peste 100 de specialisti din Europa care si-au aratat public recunostinta pentru aceasta interventie. Ca si impact, in urma acestei policy create si prin recomandarile continute, fiecare consorțiu international a inclus un task, grupuri de task-uri sau chiar un intreg work package dedicat colaborarii internationale intre consortii pentru a facilita scalabilitatea EuroQCI.



Preparing for the CEF call
Assessing a major financial risk due to the impossibility of scaling the European QCI Network

Concerns (left column):

1. EuroQCI has a high potential to become a major financial risk due to the impossibility of scaling the European QCI Network.
2. A major financial risk is the impossibility of scaling the European QCI Network.
3. A major financial risk is the impossibility of scaling the European QCI Network.
4. A major financial risk is the impossibility of scaling the European QCI Network.
5. A major financial risk is the impossibility of scaling the European QCI Network.
6. A major financial risk is the impossibility of scaling the European QCI Network.
7. A major financial risk is the impossibility of scaling the European QCI Network.
8. A major financial risk is the impossibility of scaling the European QCI Network.
9. A major financial risk is the impossibility of scaling the European QCI Network.
10. A major financial risk is the impossibility of scaling the European QCI Network.

Concerns (right column):

1. EuroQCI has a high potential to become a major financial risk due to the impossibility of scaling the European QCI Network.
2. A major financial risk is the impossibility of scaling the European QCI Network.
3. A major financial risk is the impossibility of scaling the European QCI Network.
4. A major financial risk is the impossibility of scaling the European QCI Network.
5. A major financial risk is the impossibility of scaling the European QCI Network.
6. A major financial risk is the impossibility of scaling the European QCI Network.
7. A major financial risk is the impossibility of scaling the European QCI Network.
8. A major financial risk is the impossibility of scaling the European QCI Network.
9. A major financial risk is the impossibility of scaling the European QCI Network.
10. A major financial risk is the impossibility of scaling the European QCI Network.

Recommendations for a single solution:

1. EuroQCI has a high potential to become a major financial risk due to the impossibility of scaling the European QCI Network.
2. A major financial risk is the impossibility of scaling the European QCI Network.
3. A major financial risk is the impossibility of scaling the European QCI Network.
4. A major financial risk is the impossibility of scaling the European QCI Network.
5. A major financial risk is the impossibility of scaling the European QCI Network.
6. A major financial risk is the impossibility of scaling the European QCI Network.
7. A major financial risk is the impossibility of scaling the European QCI Network.
8. A major financial risk is the impossibility of scaling the European QCI Network.
9. A major financial risk is the impossibility of scaling the European QCI Network.
10. A major financial risk is the impossibility of scaling the European QCI Network.



Dear EuroQCI partners (in brief),

Many of you will be preparing or be involved in preparing for the CEF call on cross-border connections. As you know, the deadline was tentatively delayed until 28th of March. The Petrus team would like to give you the opportunity to exchange views, questions, and ideas on proposals in a dedicated PETRUS meeting on 28th of February at 15:00 CET.

Please register here when you want to join:

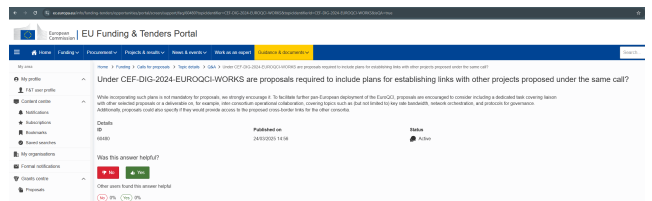
Here are two main points to present/discuss at the meeting:

1. This is a proposal by our Consortium (Petrus) to have each project consider to support other projects if it comes to routing of keys between different CEF-4 projects. They agree that the following task should be included into each CEF-4 proposal:

"We strongly recommend each project to include in the proposal a plan of action (for example, a software layer) for your consortium operational considerations, covering topics such as key exchange, network architecture, protocols for governance and providing access to the proposed cross-border links to an external consortium, external use-case prioritization in emergency situations, protocols for external network breach investigation."

The full documentation can be found here: [EuroQCI Scalability Policy](#). The document was also sent to this list, which is for your info. We at PETRUS also see that each of our key exchange across project borders is important, even only then can the full EuroQCI architecture be evaluated on a European scale. We are happy to discuss and listen to your comments on this in the meeting.

We hope to see as many of you as possible.



In iulie 2025 s-a finalizat, cu implicarea masiva a RoEduNet si sub coordonarea POLITEHNICA Bucuresti, constructia retelei de distributie cuantica de chei criptografice a Romaniei, retea care a insumat peste 1500 de km. **Reteaua terestra de QKD a Romaniei a devenit cea mai mare retea terestra din EuroQCI**. Iar pe 8 August 2025 s-au rulat peste 12 aplicatii in paralel pe aceasta retea intre partenerii din RoNaQCI, distribuiti in toate regiunile tarii, marcand astfel un moment istoric in domeniul tehnologiilor cuantice, pentru care au schimbat cuantic peste 2400 de chei criptografice de 256 biti. Pe 30 iunie s-a terminat proiectul RoNaQCI fiind printre primele din EU care au finalizat, majoritatea tarilor solicitand o prelungire de 6-12 luni. Astfel, prin ce a realizat, **Romania a devenit un punct cheie in domeniul comunicatiilor cuantice pe plan international**. Mai jos sunt prezentate in numere realizările acestui parcurs:

1500+

KMs of QKD Links

36

QKD Links (20 City Links and 16 National Backbone Links)

1600+

Trained Users, Students, Academics and Professionals

30

Partners (Academia, Industry, Public Authorities)

6500+

Certification Infrastructure Lines of Code

13

Quantum Trainings

450+

Likes, Comments, Shares

130

Quantum Training Hours

10+

Scientific Publications

164

Certifications Awarded

15+

International Talks Given

1

Quantum Book Published

13

Open-Source Repositories

19

Quantum HUBs

42

Quantum Training Teachers

150+

Students at the Hackathon

6

QKD Metropolitan Networks

80+

Social Media Posts

7

National Workshops

19000+

Impressions on LinkedIn

900+

Diplomas of Participation Awarded

41

Mentors and Juries at the Quantum Hackathon

2000+

Messages Exchanged on Discord at the Hackathon

1

International Policy for EuroQCI Scalability



universitate. Diplomele contin un un mesaj unic criptat RSA 2048 care poate fi descrisat cu ajutorul unui viitor calculator cuantic dupa strategia *Harvest Now, Decrypt Later*.



Iata o imagine care reprezinta Roadmap-ul nostru de pana acum:



and just imagine now what will follow ...