1ST IBERIAN QUANTUM COMMUNICATION INFRASTRUCTURE WORKSHOP

Left: Group photo. Right: Panels and technical sessions with presentations delivered by invited speakers

The **1st Iberian QCI Quantum Communication Infrastructure Workshop**, organized as part of the PTQCI project and included in the Aveiro Tech Week 2024 activities, took place at Teatro Aveirense, in Aveiro, on October 4th, 2024.

This event marked the first Iberian meeting where academics, companies, and public entities from **Portugal and Spain** gathered to discuss the implementation of quantum networks in both countries. A key focus of the discussions was the future interconnection of these **quantum networks**, aiming to establish a secure and efficient framework between Portugal and Spain.

Attendees shared insights and explored technical solutions for this quantum communication infrastructure, with a long-term goal of enhancing security in the exchange of cryptographic keys. Additionally, the workshop explored the broader vision of **connecting the quantum networks** of both countries to the future **European quantum infrastructure**.

ABOUT THE PROJECT

The Portuguese Quantum Communication Infrastructure (PTQCI) project is the first land segment of the European Quantum Communication Infrastructure (EuroQCI) in Portugal and is the first step towards the integration with the European infrastructure.
PTQCI should enable the deployment of highly secure services based on Quantum KeyDistribution (QKD).

In this issue:

1st Iberian Quantum Communication Infrastructure Workshop; Tech Day on Quantum Communications at Altice Labs; Equipment Supporting the Portuguese Quantum Communications Infrastructure; PTQCI MOOC on Quantum Communications: First Class by Ricardo Faleiro; and REPMUS 2024 Exercise in Troia.

The event was structured into three discussion panels, and three technical sessions, each offering **insights from Portuguese, Spanish,** and **cross-border experts**.
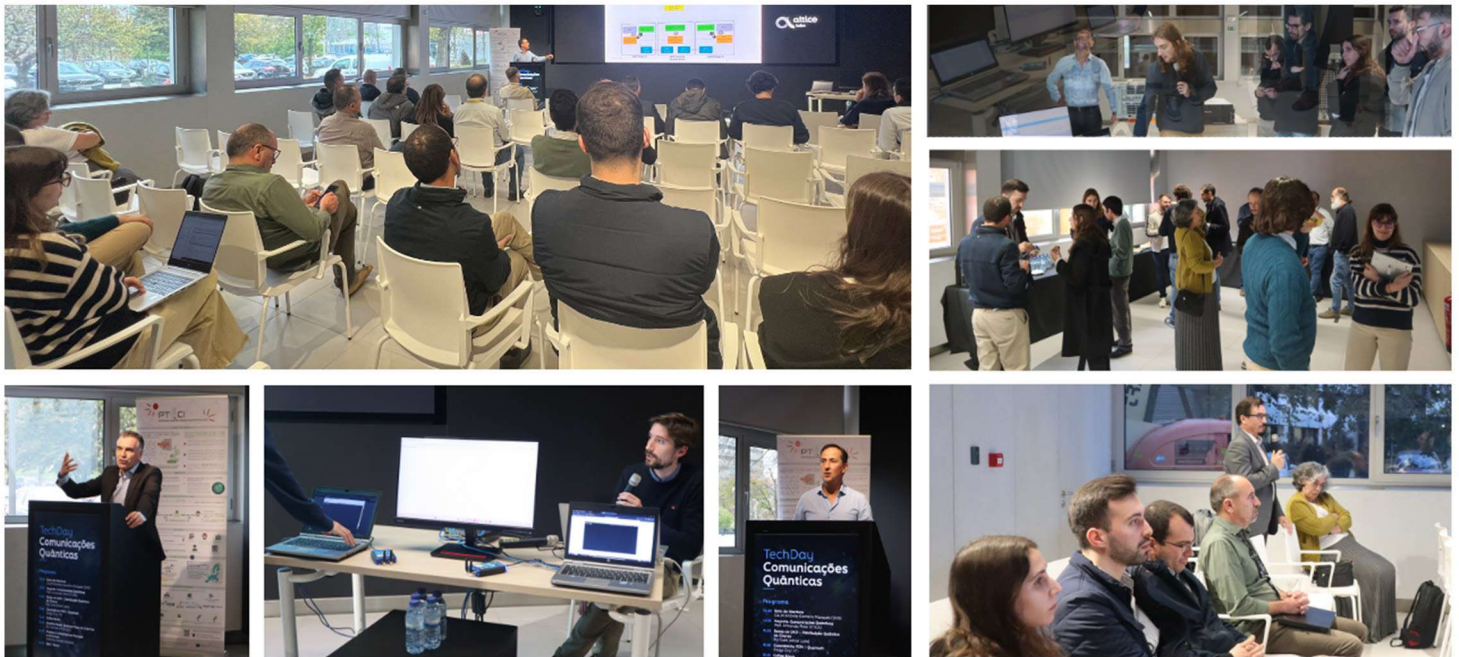
The final panel focused on the security challenges and the interconnection of national QCIs, including those of **Portugal (PTQCI), Spain (Euro-QCI Spain), Greece (HellasQCI),** and **Malta (PRISM)**.

These discussions emphasized the importance of **international collaboration** in building a secure and integrated quantum communication network **between Portugal and Spain, as well as across Europe**, which is crucial for advancing the continent's technological landscape.

Workshop Program

TECHDAY ON QUANTUM COMMUNICATIONS AT ALTICE LABS

Highlights from the TechDay on Quantum Communications at Altice Labs: Expert talks, demos, and collaborative discussions

The **TechDay on Quantum Communications** took place on December 5 at Altice Labs, in Aveiro, bringing together researchers, industry professionals, and technology enthusiasts to discuss the advancements and potential of **quantum communication technologies**.

The initiative was developed as part of the Portuguese Quantum Communications Infrastructure (**PTQCI**) project, and was organized by Rui Calé and Francisco Fontes from **Altice Labs**, with the colaboration of the Quantum Communications Group from IT.

Highlights of the event included **live demonstrations showcasing cutting-edge quantum communication systems**, and expert-led presentations on the state of quantum research and development. The interactive sessions provided a space for dialogue and collaboration, aiming to bridge the gap between research and real-world application.

The **TechDay on Quantum Communications** featured presentations by António Gameiro Marques (GNS), Prof. Armando Pinto (IT/UA), Rui Calé (Altice Labs), Diogo Cruz (IT/UA), Rui Semide (N10GLED), and Catarina Bastos (Deimos), who shared insights on key topics and initiatives in the field of quantum technologies.

The event reinforced the **importance of quantum technologies** as a driver of innovation, positioning them as key tools to meet future technological demands.
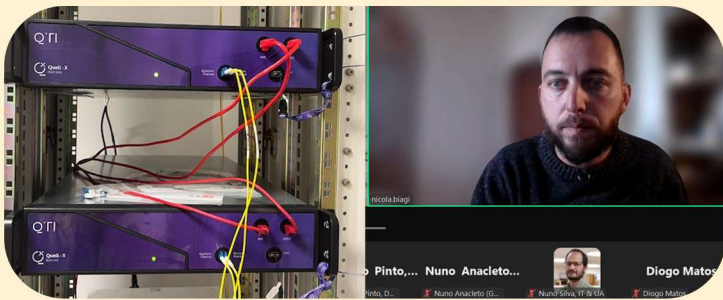

TechDay Agenda

LuxQuanta Demonstration

ThinkQUANTUM Demonstration

QTI Demonstration

Equipment to integrate the Portuguese Quantum Communications Infrastructure

We recently received equipment from **LuxQuanta, ThinkQuantum,** and **QTI - Quantum Communications Italy** for the future Portuguese Quantum Communications Infrastructure at the Optical Quantum Communication group laboratories at the Instituto de Telecomunicações, in Aveiro.

The Spanish company **LuxQuanta** conducted an on-site demonstration to showcase its advanced systems, while the Italian company **ThinkQuantum** delivered an in-lab presentation highlighting its technology. Additionally, the Italian company **QTI** conducted a Zoom presentation to introduce its innovative contributions to the development of the Portuguese infrastructure.

These demonstrations and the integration of this advanced equipment are crucial for **building the future national quantum network**. The technologies from LuxQuanta, ThinkQuantum, and QTI will enhance secure communication, support quantum research, and strengthen Portugal's role in the PTQCI and EuroQCI initiatives.

PTQCI MOOC ON QUANTUM COMMUNICATIONS BY RICARDO FALEIRO

The Massive Open Online Course (MOOC) developed as part of the PTQCI initiative is now underway, offering knowledge transfer to both academia and industry. This educational program is designed to share insights gained during the project's lifecycle and provide practical guidance for organizations transitioning into the quantum era.

The MOOC is specifically intended for students, professionals in the security and technology sectors, researchers, and organizations aiming to build expertise in quantum communications.
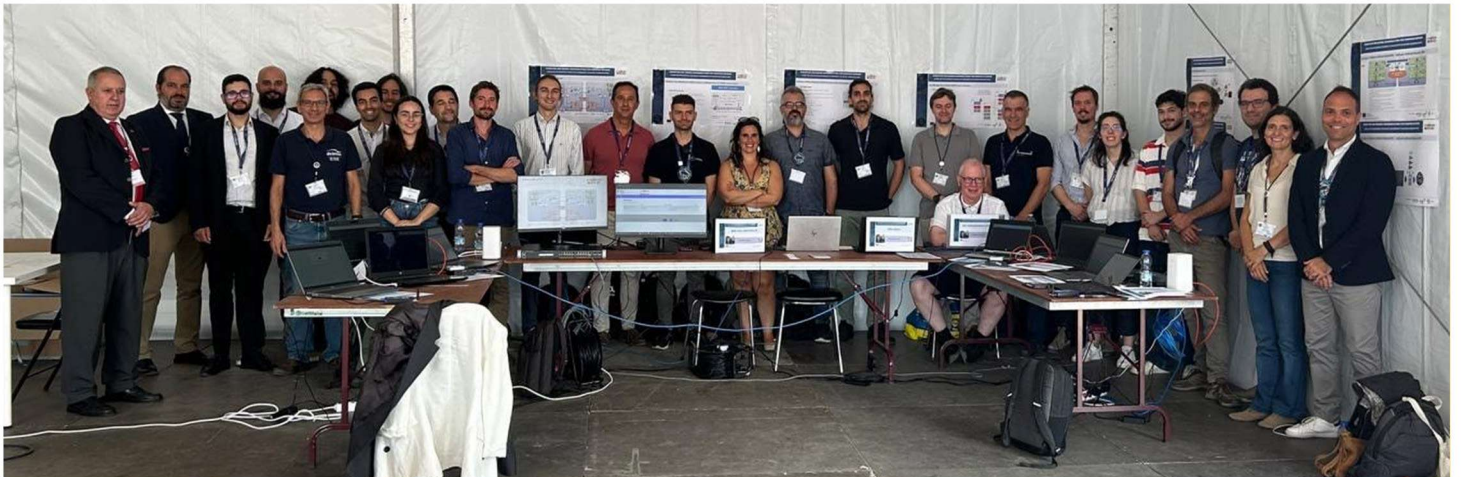
The first available class, "**A Crash Course on Quantum Information and Quantum Cryptography**", is presented by Ricardo Faleiro, a researcher at Instituto de Telecomunicações. This initial session offers an in-depth exploration of quantum information concepts and cryptographic applications.

As part of the PTQCI exploitation strategy, a PTQCI E-book will be produced, highlighting the significance of transitioning towards a quantum state status for organizations, which will be available to download free of charge from the project website. Watch the video **here**.

Ricardo Faleiro gives a lecture on "A Crash Course on Quantum Information and Quantum Crypptography"

REPMUS 2024 EXERCISE IN TROIA

The DISCRETION team and all participants involved in the system demonstration at REPMUS 2024

Partners from PTQCI project participated in a demonstration in an operational scenario for the first time during the **REPMUS 2024** (Robotic Experimentation and Prototyping with Maritime Unmanned Systems) exercise, held in Troia and Sesimbra, Portugal.

The system integrates advanced technologies, **including a Software Defined Network, a Continuous-Variable Quantum Key Distribution Node, a Key Management System, Cipher Machines, and Software Defined Radios**.

This 14th edition of REPMUS, organized by the Portuguese Navy and NATO, brought together over 2,000 participants from 30 countries, fostering technology demonstrations and collaborative meetings.

PTQCI PRESENTATION AT THE PETRUS WORKSHOP: ADVANCING EUROPE'S QUANTUM COMMUNICATION INFRASTRUCTURE

From the 26th to 28th of November 2024, **Catarina Bastos** participated as moderator of two sessions in the **EuroQCI Thematic Working Group (ETWG) workshop** convened in Brussels, Belgium.

Organized by **PETRUS** and hosted by **Deutsche Telekom Global Business Belgium**, this three-day event gathered various stakeholders of EuroQCI including the European Commission and Member State representatives to discuss European Quantum Communications Infrastructure (EuroQCI).

Photo: Petrus

PTQCI PARTNERS PARTICIPATED AT THE EVENT "SECURE COMMUNICATIONS: A UK-PORTUGAL DIALOGUE"

Photo: Sónia Pina / Instituto de Telecomunicações

On November 28, **Margarida Vieira**, representing Deimos Engenharia, and **Nelson Muga**, representing Instituto de Telecomunicações, participated in the "**Secure Communications: A UK-Portugal Dialogue**", an event organized by the **British Embassy Lisbon** and the **Instituto de Telecomunicações** to promote collaboration on cybersecurity and emerging technologies.

Margarida contributed by talking about the **PTQCI roadmap**, namely the use of **optical ground stations and satellite QKD**, and Nelson contributed to panel 1 "**Telecoms and Digital Infrastructure Security**", discussing the evolving threat landscape and the operational challenges in securing telecoms and digital infrastructure.

PARTICIPATION IN THE EVENT "PRISM QUANTUM WEEK"

On December 5, **Catarina Bastos** participated in the "PRISM Quantum Week Open Forum", an event organized by the **PRISM project** from Malta.

Catarina discussed with colleagues from other National QCIs the status and the challenges of the projects and, in particular, what has been happening in Portugal.

The initiative brought together **leaders in quantum communication** to explore advancements in this cutting-edge sector.

Catarina Bastos

PTQCI

Leading the Secure Communications & Quantum Technologies Division at Deimos Engenharia, Catarina coordinates major projects like DISCRETION and PTQCI for secure European defense communications.

Catarina Bastos at the PRISM Quantum Week

LATEST CLIPPINGS

Notícias de Aveiro
AICEP
Universidade de Aveiro
Instituto de Telecomunicações
Aveiro TechWeek
HellasQCI
Vigo Quantum Communication Center - VQCC

Check out all the clippings on our website.

NEWSLETTER - DECEMBER, 2024

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