DIM QuanTiP

Annual activity report
2025

QuanTiP
Domaine de Recherche et d'Innovation Majeur

Région îledeFrance

Foreword

Since its launch in 2022, QuanTiP research and innovation network, funded by the Paris Region and dedicated to quantum technologies, has steadily developed and contributed to the dissemination of quantum science and technologies among the scientific community, the innovation ecosystem, and the general public. QuanTiP now gathers more than 1,200 researchers, from PhD students to world-renowned scientists, in all fields relevant to quantum technology, namely quantum computing, quantum simulation, quantum communication, quantum sensing and metrology, as well as enabling sciences and technologies.

The present report provides an overview of QuanTiP's key figures and activities for the year 2025. It also includes status reports for projects funded in 2024. In 2025, QuanTiP awarded highly competitive PhD and postdoctoral fellowships, and encouraged team collaborations through equipment grants. The funded projects reflect a large diversity of research topics. The network is active in supporting innovation and technology transfer projects, and is committed to training researchers and students in entrepreneurship. QuanTiP also contributes to the international visibility of Paris Region research groups and startups. Last year, it organized its first Paris-Munich Quantum Workshop, in collaboration with the Munich Center for Quantum Science and Technology.

2025 has been declared by the United Nations as the International Year of Quantum Science and Technology (IYQ) to celebrate the centenary of quantum mechanics. QuanTiP has taken an active part in these celebrations, from the opening ceremony at UNESCO headquarters to the final Night of Quantum organized by the French Physical Society on March 31st, 2026. Numerous conferences and outreach events were organized by QuanTiP and researchers of its network. In 2025, QuanTiP launched a dedicated call for projects to encourage the development of new tools for science outreach. This was an excellent opportunity to share with the general public the rapid growth of quantum technologies and the excellence of the actors of the regional ecosystem.

Finally, the whole Steering Committee would like to honor the memory of Mark Görbig, a prominent theoretical physicist, active member of the condensed matter community and member of the board of QuanTiP's Enabling Sciences and Technologies axis, who passed away in September last year. Our thoughts are with his family.

Hélène Perrin, Coordinator

Outline

DIM QuanTiP

Activity Report

Status report on projects funded in 2024

DIM QuanTiP

Objectives

In 2022, the project QuanTiP (Quantum Technologies in Paris Region) was selected for 5-year funding by the Paris Region as one of the major research and innovation networks (DIM). Managed by the CNRS (Centre National de la Recherche Scientifique), the DIM QuanTiP aims to support, structure, and promote research and innovation efforts in the competitive field of quantum technologies.

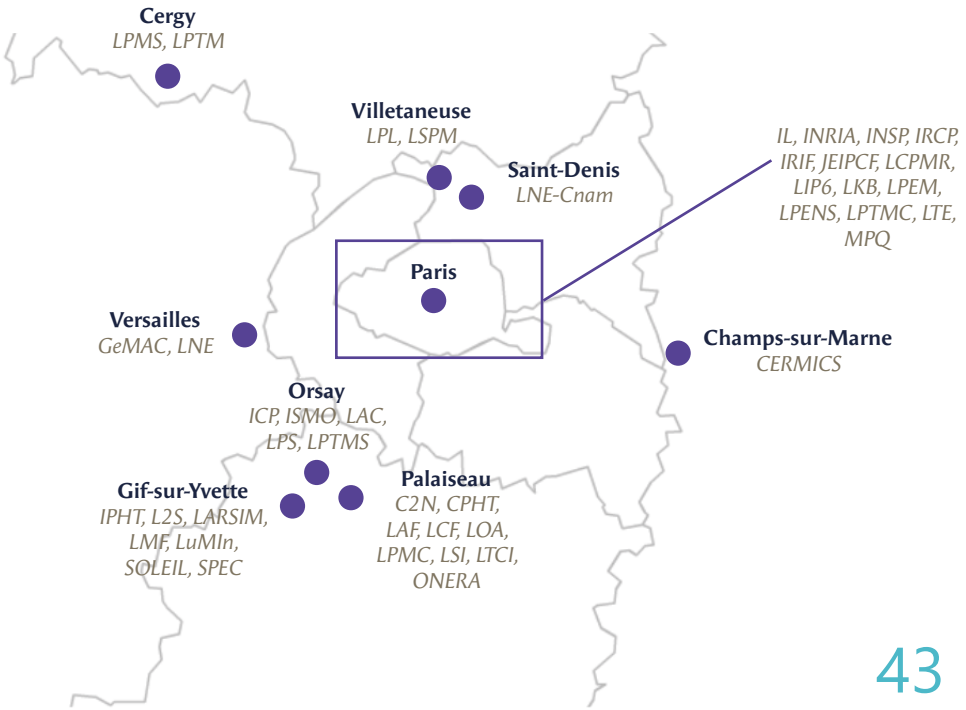
With an approach combining physics, applied mathematics, computer science, chemistry, materials, and engineering, QuanTiP covers all the major aspects of quantum technologies: "Quantum Computing" and "Quantum Simulation", set to revolutionize our computing capabilities, "Quantum Communication", which will enhance data security, and "Quantum Sensing and Metrology", which will enable ultimate sensitivities. QuanTiP members are committed to the maturation of quantum technologies —a key issue for sovereignty and growth— by developing structuring facilities and large-scale interdisciplinary projects, facilitating exchanges between researchers, entrepreneurs, and industry, and supporting the training of tomorrow's quantum engineers through research. In this way, the DIM is nurturing the regional ecosystem, paying particular attention to the transition between fundamental research and technological development, to bring about breakthrough innovations and new applications of quantum technologies, both in industry and in other scientific fields.

Through the calls for projects open to academic partners, the DIM QuanTiP provides doctoral and post-doctoral fellowships, funding for equipment, and technological transfer projects. It also supports scientific and general public events and proposes various training to the network members (innovation and startup creation, career coaching for PhD students, scientific outreach, etc.). The DIM is committed to science communication and popularization.

Network

QuanTiP brings together more than 1200 scientists in all the fields relevant to quantum technologies, with about one half being permanent staff, one third PhD students and one sixth postdocs. They are coming from 166 research groups from 43 laboratories spread around the whole region, active in universities, engineering schools and/or research centers (CNRS, CEA, Inria, LNE). QuanTiP academic network has important interactions with the socioeconomic quantum ecosystem, both large companies and startups originating from its laboratories.

Distribution of laboratories in the Paris Region



43 Laboratories

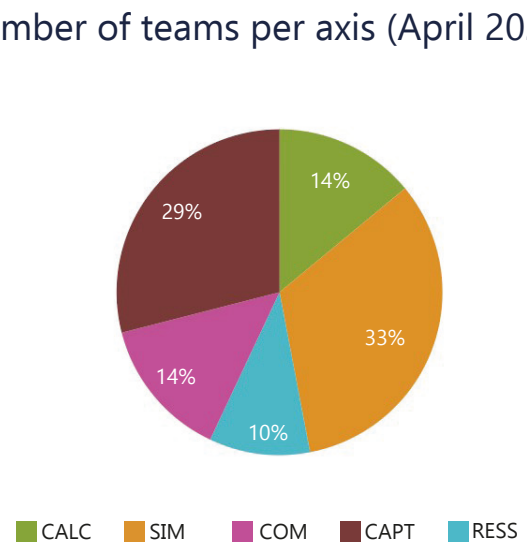
166 Teams

>1200 Researchers

Axes

The DIM is structured into the four thematic axes related to our objectives, supported by three transverse axes covering scientific and technological resources for the thematic axes, scientific and economic impact of their results, and animation and training of the community.

Transverse axes \ Thematic axes	Quantum Computing (CALC)	Quantum Simulation (SIM)	Quantum Communication (COM)	Quantum Sensing and Metrology (CAPT)
Enabling Sciences and Technologies (RESS)	Theoretical methods, new approaches, materials, integrated devices, dedicated technologies (microfabrication, cryogenics...)			
Scientific and Economic Impact (VALO)	Valorization, technological transfer to industry, identification of use cases in science and industry			
Animation and Training (ANIM)	Communication, events, training and outreach			



Axis

QUANTUM COMPUTING

CALC

Axis leaders

Patrice Bertet (SPEC) until 09/2025
Jean-Damien Pillet (LPMC) from 10/2025
Alain Sarlette (Inria Paris)

Board members

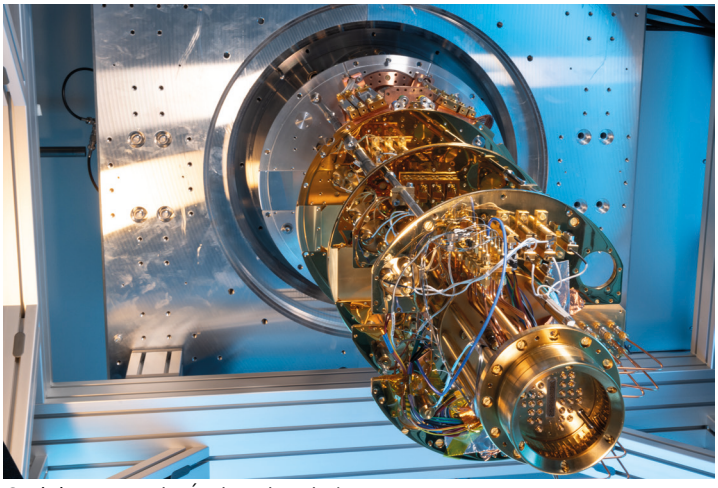
Thierry Lahaye (LCF)
Frédéric Magniez (IRIF)
Valentina Parigi (LKB)
Thomas Ayral (CPHT)

The objective of the Quantum Computing axis is to stimulate research in the Paris Region toward the realization of a universal quantum computer, combining experimental developments (physical platforms and device engineering) with theoretical advances (error correction and algorithms for both ideal and noisy processors).

On the hardware side, the Paris Region brings together leading experimental efforts across several platforms, including superconducting qubits, trapped atoms, and photonics, alongside a rapidly maturing ecosystem in which early-stage startups have evolved into structured industrial actors and new platforms like nuclear spins or fermions are appearing as new credible alternatives. The industry's dynamic is reinforced by strong involvement in the national PROQCIMA program, a key initiative of the French quantum strategy aimed at demonstrating fault-tolerant quantum computing with increasing numbers of logical qubits. In this context, current priorities focus on improving the fidelity and scalability of quantum operations, and especially advancing architectures compatible with fault-tolerant quantum computing. In parallel, increasing emphasis is placed on hardware-efficient solutions, including noise-aware control, compact circuit implementations, and co-design strategies that align hardware constraints with software and algorithmic layers. These advances support both the long-term goal of large-scale quantum computing and near-term demonstrations within the NISQ regime.

On the algorithmic side, the field continues to progress toward the integration of quantum routines into end-to-end application workflows. A recent focus is the development of hybrid quantum-classical approaches, which combine quantum processors with classical optimization and simulation techniques to maximize performance at reduced quantum hardware cost. Efforts also target the development of efficient programming frameworks and compilation strategies bridging high-level applications and low-level execution, including resource-aware integration of error correction.

Reflecting the steady hardware progress in line with long-term expectations, education efforts in quantum computing applications have also been significantly expanded in recent years, both towards the future workforce and towards potential end-users of this computational tool. This program relies on strong interdisciplinary collaboration across physics, applied mathematics, and computer science to address the full stack of challenges in quantum technologies.



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Axis

QUANTUM SIMULATION

SIM

Axis leaders

Jérôme Beugnon (LKB)
Nicolas Pavloff (LPTMS) from 10/2025
Laurent Sanchez Palencia (CPHT) until 09/2025

Board members

Jacqueline Bloch (C2N)
Jérôme Estève (LPS)
Christophe Mora (MPQ)
Goulven Quéméner (LAC)
Adrien Signoles (Pasqal)

The Quantum Simulation axis focuses on the experimental and theoretical study of quantum devices designed to solve complex problems in an analogical approach. Many scientific as well as applicative questions that are inaccessible even to large-scale classical computers do not necessarily require universal quantum computers. The idea of quantum simulation is to simulate the problem using another quantum system, easier to manipulate, and/or to explore extended configuration spaces. Verifying quantum simulators is crucial and requires interdisciplinary efforts to improve theoretical models. Their applications include understanding major challenging quantum phenomena such as high-Tc superconductivity, quantum magnetism, out-of-equilibrium dynamics in the presence of disorder, topological phases, as well as many other issues in materials science, high-energy physics, astrophysics, or quantum chemistry. Most of these problems are approached through optimization, which paves the way to extensions towards applications for industry and society.

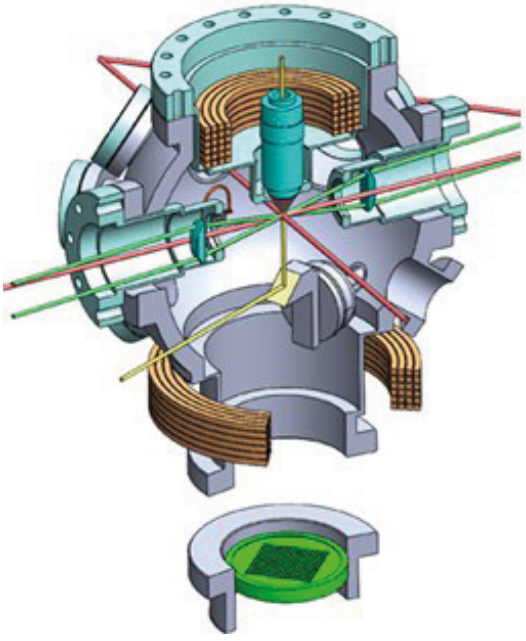
The focus of the axis is to develop and mature quantum simulators along several lines:

(1) Develop a variety of quantum simulation platforms, in quantum gases, photonic systems and solid-state materials

(2) Develop protocols to implement, run, and validate quantum simulators in a variety of scientific problems, taking advantage of a close synergy between experiments and theory

(3) Valorize existing platforms and explore present-day possibilities

(4) Extend applicative use-cases in close synergy between academia and industry



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Axis

QUANTUM COMMUNICATION

COM

Axis leaders

Nadia Belabas (C2N)
Alex Bredariol Grilo (LIP6)

Board members

Romain Alléaume (LTCI)
Maria Amanti (MPQ)
Jean-Michel Melkonian (ONERA)
Alexei Ourjoumstev (JEIPCF)
Tom Darras (Welinq)

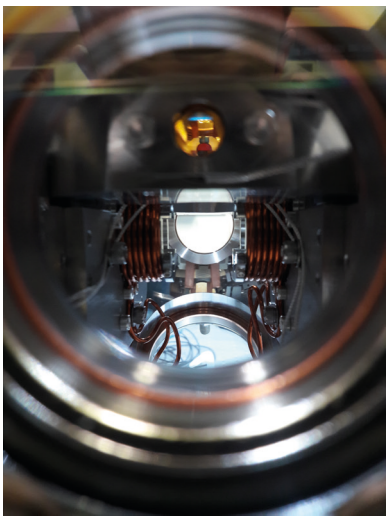
One of the most mature applications of quantum technologies is the secure exchange of information via quantum communications, which generalizes quantum cryptography methods. **The aim of the community is to build hybrid quantum communication networks that integrate multiple physical quantum information platforms and encoding methods, ensuring secure exchanges resistant to attacks from both classical and quantum supercomputers.** In the Quantum Communication axis approach we push forward all the components of a quantum network: the generation and detection of photons and entangled states, quantum memories, and atom-light interfaces using hybrid or opto-mechanical systems, useful for developing quantum repeaters to extend the network and improve existing cryptographic technologies.

Quantum cryptography has developed very rapidly in recent years, both theoretically (security proofs, device validation criteria) and experimentally (increasingly high-performance systems). It therefore appears to be a forerunner for quantum technologies, particularly for the transition between research and applications «out of the laboratory». In this field, the region is very well endowed, with state-of-the-art teams and excellent theory-experience and physics-computing synergies. Several manufacturers (Thales, Nokia, Exail...) and startups (Quandela, VeriQloud, Kets, Cryptonext...) are involved.

The Quantum Communication axis of QuanTiP supports research and innovation with three main objectives, using technologies developed in the Paris Region:

(1) Develop quantum cryptography and quantum networks
(2) Improve sources and detectors
(3) Enable long-distance quantum communications

The building blocks and efforts in points (2) and (3) are relevant notably for optical quantum computation hardware. Conversely, the progress achieved in (1) and (3) is useful for distributed and secure computation or sensing.



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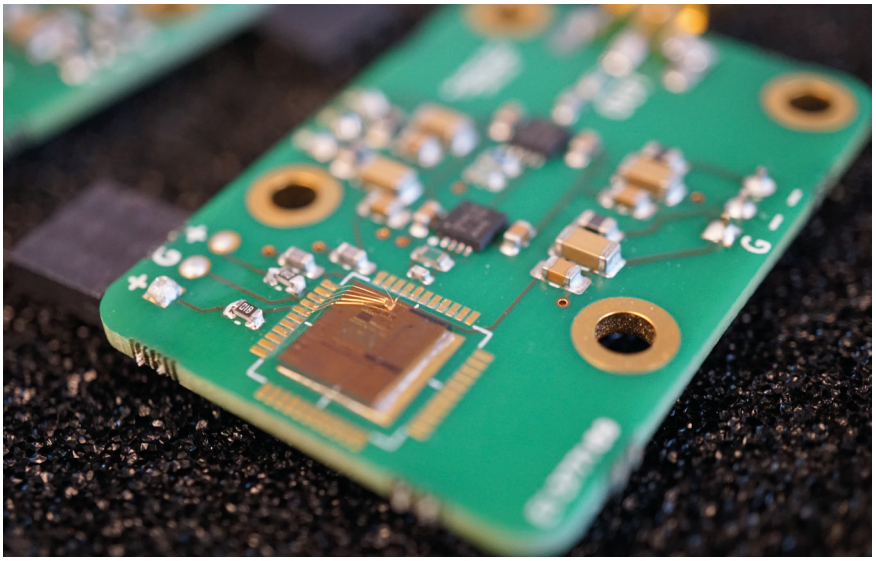

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Axis

QUANTUM SENSING AND METROLOGY

CAPT

Axis leaders

Ivan Favero (MPQ)
Franck Pereira (LTE)

Board members

Cheryl Feuillet-Palma (LPEM)
Fabienne Goldfarb (LuMIn)
Mathieu Manceau (LPL)
Laura Thevenard (INSP)
Dimitri Labat (Chipiron)

Whatever the physical system used (atoms, molecules, spins, optomechanical devices of micro- or nanometric dimensions), the Quantum Sensing and Metrology axis aims at developing quantum sensors exploiting the quantum properties of matter and light to achieve very high sensitivity to external force fields.

They can be used to measure a wide range of physical quantities, opening up applications in numerous fields with high societal impact, such as climate and natural resource monitoring, healthcare, positioning, navigation and timing, or natural disaster prevention. While these sensors are often limited by classical noise sources, measurement protocols exploiting quantum correlations offer the possibility of pushing their sensitivity below the standard quantum limit.

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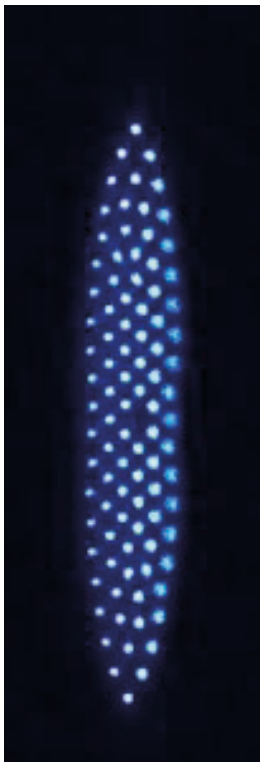

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Axis

ENABLING SCIENCES AND TECHNOLOGIES

RESS

Axis leaders

Danijela Marković (LAF)
Alexandre Tallaire (IRCP)

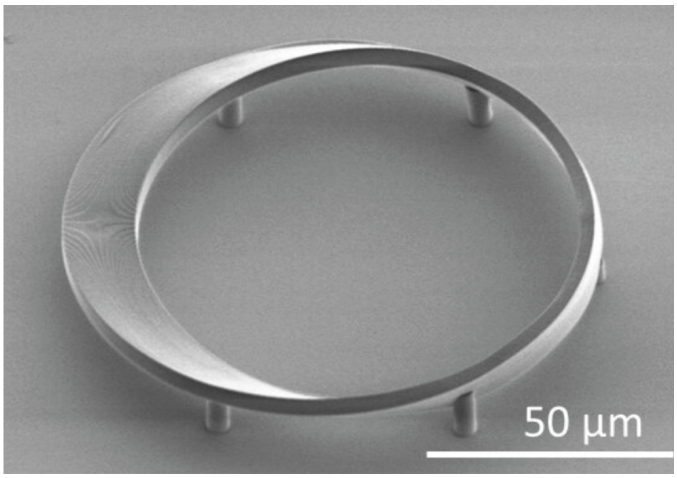
Board members

Marie-Pierre Adam (LuMIn)
Aymeric Delteil (GeMaC)
Jean-Noël Fuchs (LPTMC)

The Enabling Sciences and Technologies axis of QuanTiP is transverse and strongly interdisciplinary as it aims at supporting research efforts in sensing, computing, communication, and simulation, by providing them with the essential building blocks required for their development.

It encompasses theoretical models, numerical and analytical mathematic tools, but also new approaches that will facilitate the adoption of quantum information processing techniques in particular. Material science and associated fabrication technologies to achieve "quantum-grade" platforms that are robust yet flexible, ranging from bulk crystals to nanomaterials, are also an important part of this transverse axis.

The integration of quantum functionalities into compact, well designed and efficient devices, that feature hybrid combinations of material systems and allow an easy manipulation of their quantum states is an absolute necessity to achieve the foreseen goals. This will rely on enabling technologies that must be specifically developed for this area. They include for example adapted cryogenic systems, highly stable and narrow lasers, low-noise electronic circuits, as well as micro and nanofabrication approaches.



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Axis

SCIENTIFIC AND ECONOMIC IMPACT

VALO

Axis leaders

Matthieu Delbecq (LPENS)
Agnès Maître (INSP)

Board members

Eleni Diamanti (LIP6)
Sylvain Gigan (LKB)
Almazbek Imanaliev (LNE)
Riadh Issaoui (HiQuTe Diamond)
Elvira Shishenina (Quantinuum)

The goal of the Scientific and Economic Impact axis is to stimulate the socio-economic and scientific impact of research into quantum technologies. The actions are supported by a board of about 5 people who ensure an effective interface between the scientific community and the socio-economic world.

The objectives are to develop use cases for quantum technologies for new scientific or industrial applications and to encourage, train and support the DIM members in their efforts to exploit these technologies. Several dedicated events and actions are organized for these purposes, open to all, from PhD candidates to researchers. These include a valorization awareness day with lectures on intellectual property and entrepreneurship, testimonials from quantum entrepreneurs as well as a 3-day entrepreneurship training school.

These days help to arouse the interest of players in the academic world, who are still too little informed about the possibilities available to them in this field. They provide an opportunity to identify technologies and potential candidates who could benefit from QuanTiP to get started. One of our challenging mission is to identify such ambitious projects based on promising technologies at a very early stage and provide them with the means to demonstrate proof of concept or design a prototype that validates the fact that this technology can leave the laboratory. This is done with the help of comparatively upstream pre-maturation actions that are lacking in the current ecosystem.

Valorization Awareness Day, April 8, 2026


Quantum Job Fair, November 27, 2025

Axis
ANIMATION AND TRAINING

ANIM

Axis leaders

Senka Ćuk (QuanTiP)
Jérôme Lodewyck (LTE)

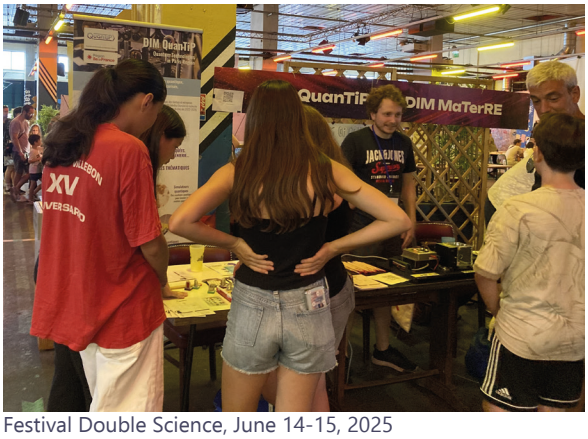
Board members

Michèle Leduc (LKB)
Denis Vion (SPEC)
Valia Voliotis (INSP)
Mattia Walschaers (LKB)

The Animation and Training axis aims to promote a common scientific culture and to strengthen exchanges and collaborations among DIM researchers and partners. The axis also seeks to raise the visibility of our research network, both locally and internationally, through appropriate communication and initiatives targeting the academic world, start-ups and companies, and the general public.

The Axis board evaluates funding requests received through our calls for scientific event projects (conferences, workshops, doctoral schools, etc.) while encouraging the participation of young researchers and gender balance among speakers.

All year round the axis organizes scientific events and training for the network members - these activities will be described in the following sections. This axis also plans and coordinates actions for the general public and high schools. Each year, we recruit PhD students for dedicated outreach missions. The students participate in science fairs and scientific speed meetings and are involved in lab tours, workshops, and presentations for high school students. They also work closely with our communication officer to develop new tools for science outreach. The Animation axis nourishes collaboration with other quantum hubs within the regional ecosystem (QICS - Quantum Information Center of Sorbonne University, PCQT - Paris Center for Quantum Technologies, Quantum-Saclay), the French Physical Society, other DIMs of the Paris Region, as well as with associations and FabLabs (Atouts Sciences, Ludomaker, TRACES, ADOC Talent Management...).



Festival Double Science, June 14-15, 2025


High school René Auffray, May 2, 2025


"Entangled" prototype at "Spotlight on Quantum", January 21, 2026

PhD students participating in outreach initiatives (2024-2025):

Lilay Gros-Desormeaux (MPQ)
Lucas Jarjat (LPENS)
Amin Lakhal (LKB)
Bastien Mirmand (LPL)

Communication & Outreach Officer
Zoé Vessière (QuanTiP)

Activity Report

Budget

In 2025, QuanTiP received 2.5 M€ funding from the Paris Region (1 M€ for operating costs, and 1.5 M€ for investment expenses). Below is the budget breakdown for 2025.

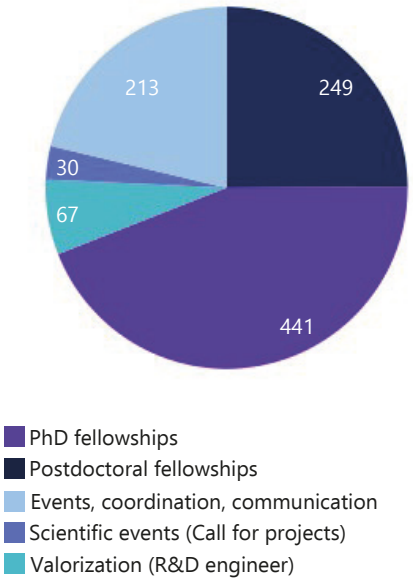
Operating expenses primarily cover PhD fellowships, either 18 or 36 months (up to 126,000 € for a three-year fully funded position), one-year postdoctoral fellowships (capped at 65,000 €), nine-month recruitments of research engineers working on prototyping, and salaries of the communication officer and the project manager of the DIM. Included are also the CNRS fees, organizational costs of scientific events, training, and doctoral schools, outreach activities, and compensations for PhD students involved in outreach activities with the DIM.

The 2025 investment budget is co-funded, as required by regional rules. QuanTiP subventions can cover up to 66% of the total equipment cost. Funding is distributed through the following two calls for projects:

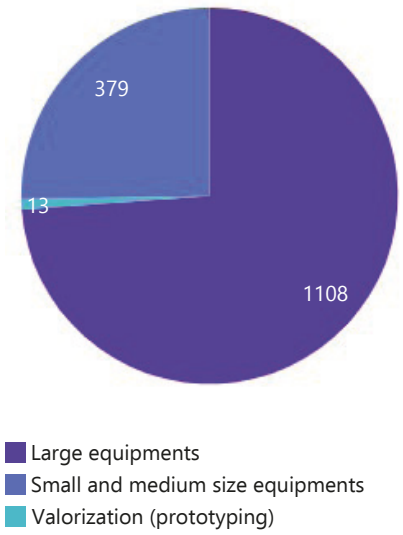
1. Call for large-scale equipment projects that require collaborations among at least two teams and a total cost above 152 k€ (the participation of QuanTiP is between 100 k€ and 300 k€);

2. Call for medium and small-scale equipment projects with a cost below 150 k€ and where collaboration is not mandatory (with QuanTiP contribution capped at 50 k€).

Operating budget 2025 (k€)



Investment budget 2025 (k€)



Animation and training

Events and training

The year 2025 has been declared by UNESCO as the International Year of Quantum Science and Technology. This initiative marks the 100th anniversary of the development of quantum mechanics, a fundamental discipline that has led to significant technological advancements. The coordination team and the entire QuanTiP community actively share knowledge, promote education and research in this field, and raise public awareness of the fascinating topics of quantum physics and its applications.

The DIM QuanTiP organizes its annual meeting at the Sorbonne Paris Nord University in Villetaneuse each year. This event that brings together network members aims to encourage interactions and increase the visibility of research activities within the DIM. It is also for the Steering Committee the opportunity to report on our activities in front of our international Scientific Committee, and benefit from its feedback. The previous meeting, held on May 27, 2025, gathered roughly 110 participants around presentations of our activities and accomplished results, scientific talks, posters, and a « quantum » board game session.

Among the events that QuanTiP organizes regularly is a week-long international conference covering one of the four main research areas (axes) of the DIM. The previous one, the International Conference on Quantum Computing (ICoQC2025), took place from May 12 to 16, 2025, at the Institut Henri Poincaré in Paris (for more information, see page 16).

To raise community awareness of the challenges in technology transfer or startup creation, the DIM organized in June 2025 a three-day summer school on entrepreneurship, innovation and intellectual property, with the support of valorization players (entrepreneurs, start-ups, IP lawyers, SATT, CNRS Innovation, etc.).

In November 2025, the DIM QuanTiP, in partnership with ADOC Talent Management, organized a training session on career development for young researchers in the network (doctoral and postdoctoral students). This training allowed participants to discover the diverse opportunities available to them after their PhD and to learn how to identify and showcase their skills to recruiters.

Quantum Job Fair, co-organized this time in partnership with Le Lab Quantique, La Maison du Quantique ÎdF, the PCQT, and Quantum-Saclay, took place on November 27, 2025, at the Cité Internationale Universitaire de Paris. The event attracted approximately 250 engineering students, doctoral and postdoctoral researchers, numerous researchers offering theses and postdoctoral positions in their laboratories, as well as a number of industrial partners (Aqora, C12, Cailabs, Crystal Quantum Computing, EDF, HiQuTe Diamond, Isentroniq, QbitSoft, Quobly, PrediQt, Silent Waves).

To close out 2025, the DIM hosted members of the German research network MCQST (Munich Center for Quantum Science and Technology) in December 2025 for a two-day workshop marked by enriching discussions. Scientific presentations, poster sessions, visits to research laboratories in the Paris Region, and a roundtable discussion on strategies and initiatives to strengthen collaborations between different regional and national hubs provided numerous opportunities to share our best practices and our activities. The next meeting is already scheduled for October 2026 in Munich.

The activities proposed by scientific institutions and researchers in the Paris Region, within the IYQ2025, included conferences, workshops, doctoral schools, as well as exhibitions and events aimed at the general public. QuanTiP supported the movement with the calls for proposals for scientific events, and a new call dedicated to science outreach projects.

Outreach

Throughout the IYQ2025, numerous events were organized to raise public awareness on the importance of quantum science and its applications. The activities carried out by the QuanTiP team include:

- Presentations in high schools (Paris, Épinay-sur-Seine, Sarcelles, Clichy) on quantum technologies, demonstrations of light properties and various experimental techniques (e.g., particle trapping), as well as discussions about the life and work of a PhD student.
- Laboratory visits (LTE in Paris, LPL in Villetaneuse), during which students can explore the experimental facilities and interact with researchers.

We have also expanded our activities to strengthen our presence at universities and reach out to students:

- Orientation, Science & Culture Week at Sorbonne Paris Nord University, where our workshop focused on our optical tweezers experiment.
- Researchers' Night at Paris-Est Créteil University, during which we spoke with students about theses and academic career prospects.

Our outreach activities are primarily aimed at the general public, hence we participated in the:

- Fête de la Science 2025 (Paris, Villetaneuse, Groslay)
- Festival Double Science (Paris)
- Outreach day of the SFP General Congress (Troyes)

We have also supported and co-organized:

- Virtual tour of a research lab, organized in the context of the ICoQC2025 conference (IHP and LPENS, May, 2025)
- Spotlight on Quantum, a one-day general public event that took place in the LUMEN Center (Gif-sur-Yvette) in January, 2026

The "Spotlight on Quantum" event was co-organized by QuanTiP in collaboration with Quantum-Saclay, the PCQT, the QICS, the SFP, and Atouts Sciences. This event, dedicated to making quantum science and technology accessible to the general public, attracted over a hundred people and represented our last contribution to the IYQ2025. This was an opportunity to bring together several regional laboratories to present their outreach projects.

Last year, the DIM also supported the preparation of the exhibition "Quantum Sensation," an immersive experience showcasing various artistic interpretations of quantum physics. Supported by several institutions and held under the patronage of the French National Commission for UNESCO, the exhibition was held at the Maison Poincaré from April 10 to July 26, 2025.

In 2025, four PhD students from the network worked with us on our science outreach projects. With the support of QuanTiP communication officer, they continued to develop or improve our educational resources for the general public, such as our optical tweezers demonstrator, a "summer workbook," posters, optics kits, and board games on quantum.

Communication

The DIM QuanTiP is active on LinkedIn, where the number of subscribers to our page has almost doubled since the same period last year and continues to grow. In February 2025, we launched our newsletter, which is now published quarterly.

New articles are regularly published on our website, showcasing recent publications, job offers, different events, and outreach activities.

QuanTiP Summer Workbook

International Conference on Quantum Computing

The DIM annual conference, dedicated in 2025 to quantum computing and organized under the title International Conference on Quantum Computing (ICoQC2025), was held from May 12 to 16, 2025 at the Institut Henri Poincaré (Paris 5e). The venue, well known for hosting scientific events of this kind, proved highly suitable, and the organization ran smoothly throughout the week. The program included invited talks, contributed presentations, poster sessions, and a public outreach event.

Wednesday afternoon was devoted to laboratory visits, with participation from two companies, Quandela and Alice&Bob. The conference also benefited from significant financial support from quantum computing companies in the Paris Region.

From a scientific perspective, the conference attracted around 150 participants (with more than 200 registrations). The program featured 7 invited talks, 19 contributed presentations, and 7 roundtable discussions bringing together session speakers, sometimes joined by additional local participants. Notably, the conference achieved an almost perfect gender balance among speakers. The sessions were designed to cover the full spectrum of quantum computing, including hardware platforms, error correction, and algorithmic applications.

Speakers made a strong pedagogical effort, enabling the audience to engage both with cutting-edge research and with more accessible insights in less familiar areas. The poster sessions were well attended and fostered lively discussions. More than half of the contributed talks were delivered by junior researchers (PhD students and postdoctoral fellows), providing them with valuable visibility. These presentations were delivered with enthusiasm and were met with active engagement from participants. While the audience composition varied slightly from day to day, attendance levels remained consistently high.

The public outreach event consisted of a live visit to a superconducting qubit research laboratory at ENS Paris, featuring real-time interaction between presenters in the auditorium and a camera team in the adjacent lab. Although attendance from outside the conference turned out to be very low—which was somewhat disappointing, particularly for the PhD students who had prepared the event—the format was well received by those present, and the technical execution was smooth and effective.

International Scientific Committee	Local Organizing Committee	Coordinator
Patrice Bertet	Nina Amini	Alain Sarlette
Christiane Koch	Nadia Belabas	
Frédéric Magniez	Patrice Bertet	
Tracy Northup	Senka Ćuk	
Pascale Senellart-Mardon	Derya Gök	
Barbara Terhal	Alex Grilo	
Lorenza Viola	Elham Kashefi	
	Zoé Vessière	

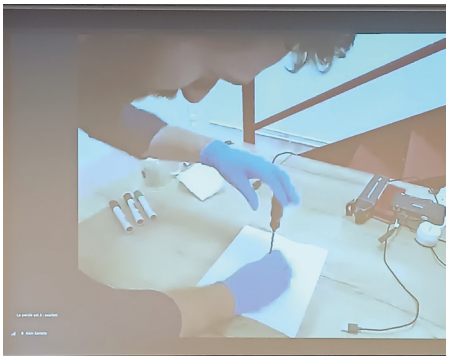
International Conference on Quantum Computing

Conferences

Invited speakers

Natalie Brown (Quantinuum)
Yvonne Gao (National University of Singapore)
Stacey Jeffery (CWI Amsterdam)
Philip Walther (Vienna University)
Marco Cerezo de la Roca (Los Alamos)
Aleksander Kubica (Yale University)
Giulia Semeghini (Harvard University)


Poster session


Outreach event

Funded projects 2024

In 2024, we awarded 5 PhD fellowships (three full PhD fellowships and two 18-month fellowships), and 4 1-year postdoc fellowships. We have funded 6 Large equipment collaborative projects and 6 Small and medium -size equipment projects. The detailed list of projects is given below, with the selection rate for each call for projects indicated in parentheses. In addition, we have supported 3 valorization projects, we have awarded 2 technological contest prizes, and supported the organization of 8 scientific events and 1 outreach event.

In 2025, one large-scale equipment project, SUMMET2D, a collaboration between two teams from the LPS and MPQ laboratories, faced implementation challenges. Most of he regional grant (245,000 €) was recovered from the LPS team by the DIM, with 15,000 € retained for expenses already incurred by the MPQ partner. The project has been reclassified in this report as small to medium-sized equipment.

Main axis distribution

Second axis distribution

Scientific events

Workshop

- Quantum control of rotational dynamics (CoRoMo)
- Interplay between tunneling current and optical excitations (INTERACT)
- Graphix workshop

Conference

- Quantum Emitters: From atoms to solid state and their role in quantum optics
- We are Quantum (WAQ) x YQIS 2024
- 40 ans des boîtes quantiques épitaxiées - Hommage à Jean-Yves Mazin (ORIGINE)
- Light-matter interactions and collective effects
- Polish-French Symposium III: Developments in the physics of ultracold matter

Outreach events

Exhibition

- Exhibition « Sensation quantique »

Technological contest

COntinuous variable Multiplexed Entanglement-based Technology in Quantum Cryptography (COMET)
D. Fainsin, V. Parigi

1

Lossless generation of decoy states for quantum cryptography with quantum emitters (SYMBOLIQ)
Y. Portella, D. Fioretto

2

Funded projects 2024

PhD fellowships (5/16)

- The supersolid phase of homogeneous dipolar gases, a new window on quantum magnetism (UniSolDy). **R. Lopes** - LKB
- Hybrid spin-superconductor systems : A Novel Quantum Information Processing Platform (HSSQ). **P. Bertet** - SPEC
- DUal Atomic Loader in an Ytterbium clock for a Phd Application (DUALYPA). **R. Le Targat** - LTE
- Correlation Imaging for Strongly Interacting Fermions (CISIF). **T. Yefsah** - LKB
- Quantum Imaging using non-degenerate harmonics (QUINS+). **H. Merdji** - LOA

Postdoctoral fellowships (4/7)

- Security proof for Continuous-Variable Quantum Key Distribution (SecCVQKD). **A. Leverrier** - Inria
- Twisted bilayer graphene: Symmetry of moiré minibands as a function of twist angle (TBGSym). **H. Aubin** - C2N
- ADVanced technologies for ENGineering diamond-based sEnsoRS (ADVENGERS). **A. Tallaire** - IRCP
- Collective light scattering and forces in fluctuating quantum systems (CLARIFY). **N. Cherroret** - LKB

Large equipment (6/6)

- Mid Infrared Quantum Imaging and Spectroscopy (MIRQUIMAS). **M. Amanti, J-M. Melkonian** - MPQ, ONERA
- 2D Critical Phenomena and phase transition Atom by atom (2D-CPA). **T. Chalopin, N. Dupuis** - LCF, LPTMC
- Desired cryostat for electronic transport testing of MBE material and devices (Désirée C). **U. Gennser, A. Lemaître, Y. Jin, G. Menard** - C2N, LPENS
- Etching platform for QUantum technologies In Paris (EQUIP). **T. Barisien, T. Jacqmin, A. Bramati, D. Garcia-Sanchez, M. Delbecq** - INSP, LKB, LPENS
- Control of Cold Molecules for Quantum Technologies (CoCoQuaT). **H. Lignier, Q. Bouton, B. Darquié, M. Manceau** - LAC, LPL
- Engineering QUantum emitters through mIXed dimension van der Waals hetero-structures (EQUINOX). **C. Voisin, J-S. Lauret** - LPENS, LuMIn

Small and medium-size equipment (6/7)

- Efficient Photonic Interconnect for atomic Quantum systems (EPIQ). **A. Ourjoumtsev** - JEIPCdF
- In-vacuum Fibers for a Quantum Interface with Strontium ionS (IFQSS). **V. Cambier** - MPQ
- Near field imaging of THz Resonators with Rydberg Atoms (TERRA). **A. Laliotis, J-M. Manceau** - LPL, C2N
- Quantum Atomic Force Microscope (Quantum-AFM). **I. Favero** - MPQ
- Improving NV-based detection of superconductivity in diamond anvil cells (iNV-DAC). **J-F. Roch** - LuMIn
- Unconventional Superconductivity in (Magnetic) Metals and 2D Materials (SUMMET2D). **Y. Gallais** - MPQ

Valorizing research through technology transfer (3/5)

- Ultralow-power logic-in-memory devices based on ferroelectric two-dimensional electron gases (ULTIMATE). **M. Bibes** - LAF
- Optomechanical Microscale Multiphysics Sensor (OMiMUS). **I. Favero** - MPQ
- NANOpositionneurs cryogéniques à MOUVement glissant collant (NANOMOUV). **F. Debontridder** - INSP

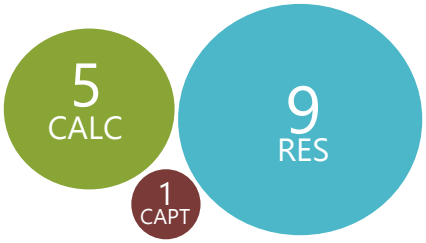
Funded projects 2025

In 2025, we awarded 5 PhD fellowships (two full PhD fellowships and three 18-month fellowships), and 4 1-year postdoc fellowships. We have funded 5 Large equipment collaborative projects and 9 Small and medium-size equipment projects. The detailed list of projects is given below, with the selection rate for each call for projects indicated in parentheses. The pressure has been particularly high on the call for PhD fellowships, with 33 applications. In addition, we have supported 2 valorization projects, 3 outreach projects for the International Year of Quantum Science and Technology and 12 scientific manifestations.

With the support of the DIM QuanTiP, a book by Michel Le Bellac and Isabelle Zaquine, entitled "Quantum Information: Theory and Experience", was published last year.

Main axis distribution

Second axis distribution



Scientific events

Workshop

- Two-dimensional and Disordered Superconductors (TIDES)
- 40 years of Quantum Optics in Jussieu (40QUANTUM)
- Spins in Paris 2025
- France-Chicago Conference on Spin Defects in Solids for Quantum Information Science (SDS-QIS)

Conference

- Annual meeting of the GDR Quantum Gases
- Quasiprobability distributions in quantum mechanics, optics and information (QuiDiQua 3)
- Annual meeting of the GDR Quantum Technologies (TeQ4)
- Physics of Excitons and Polaritons in Semiconductors (PEPS2026)
- Physique de précision en région ÎdF : Mesures de constantes fondamentales et physique au-delà du modèle standard
- From the single photon to continuous variables: 40 years of advances in quantum optics, in honor of Philippe Grangier
- 100 Years of Quantum Physics - In honor of Prof. Serge Haroche (Vietnam)
- National Days of PhotoEmission Spectroscopies 2026

Quantum Year projects

- Align-out (experimental game)
- ImmersION (art-science exhibition)
- Suprateliers (educational workshop)

Funded projects 2025

PhD fellowships (5/33)

- Quantum Interconnects Catalyzed by Rydberg Superatoms (QICRyS). **A. Ourjoumstev** - JEIPCF
- Precision spectroscopy of Antiprotonic atoms with Quantum Sensors (PAQS). **N. Paul** - LKB
- Spin-Photon Interfaces used as photon Receivers (SPIRE). **L. Lanco** - C2N
- Quantum communication and discrimination in the single-shot regime (QCDSSR). **M. Quintino** - LIP6
- Momentum-space correlations in 3D Lattice Fermions (MLF3D). **D. Clément** - LCF

Postdoctoral fellowships (4/12)

- Dual-cloud atom interferometer for vibration insensitive measurement of atomic recoil (DCAI). **S. Guellati-Khelifa** - LKB
- Nanometer scale Single molecule sensing for SERS and thermoplasmonics (NanoSMS). **V. Krachmalnicoff** - IL
- Production and characterization of a soliton gas (SOL). **A. Perrin** - LPL
- Quantum Higher-Order Bayesian Networks (QuHOB). **C. Faggian** - IRIF

Large equipment (5/5)

- COoperative Molecular OptomechaNics (COM'ON). **I. Shlesinger, F. Agostini, D. Lauvergnat** - MPQ, ICP
- Focused Ion Bean EngineeRing of Quantum materials (FIBER-Q). **A. Tallaire, J. Achard** - IRCP, LSPM
- Sputtering multimaterial in-situ for quantum electronic devices (SPUTniQ). **P. Abgrall, J.-D. Pillet, J. Estève** - SPEC, LPMC, LPS
- Tailored Optical Potential for Atomic Dipolar SyStems (TOPADSyS). **L. Vernac, S. Lepoutre** - LPL, LAC
- Rapid Assembly of Defect-free atom Arrays (RADAR). **T. Lahaye, C. Sayrin** - LCF, LKB

Small and medium-size equipment (9/10)

- Entanglement distribution in the Paris Region Testbed (qParis). **J. Laurat** - LKB
- Light Control of Magnetism in van der Waals Materials (LIMAG). **N. Nilforoushan** - MPQ
- Di-radicals for quantum sensing (DIQUANTIQ). **A. Chepelianskii, J-S. Lauret** - LPS, LuMIn
- Quantum Logic Spectroscopy of molecular hydrogen ions for the metrology of fundamental constants (Quronos). **L. Hilico** - LKB
- Single photon sources at Telecom wavelengths with semiconductor Quantum Dots (TeQuanDo). **S. Hameau, A. Lemaître** - INSP, C2N
- Continuous Atomic Gravimeter for noise reduction to the Quantum Projection Limit (CAG-QPL). **A. Landragin** - LTE
- Sensing by electron flying qubits (SENFLY). **P. Roulleau** - SPEC
- Low-Frequency Quantum Optomechanics by dynamical stress control in silicon nitride resonators (LoFreQO). **T. Jacqmin** - LKB
- Exploring Photoluminescence in Eu:YSO for new generation ultra-stable LASERS (EPEYLASERS). **B. Fang** - LTE

Valorizing research through technology transfer (2/4)

- Quantum Empowered Medical Imaging (QMI). **Q. Glorieux, D. Naik-** LKB
- Tuning of CLAdded PHOtonic devices Sensors (TUCLAPHO). **I. Favero, H. Neshasteh -** MPQ