

Pasqal and Thales Successfully Solve Satellite Planning Challenges with Neutral-Atom Quantum Computing

PARIS, FRANCE, May 17, 2024

/EINPresswire.com/ -- Pasqal, a global

leader in neutral atom quantum computing, in partnership with [Thales](#), today announced a major advancement within the AQUAPS project. This innovative project aimed to explore neutral atom architectures to solve optimization problems, with a particular focus on satellite planning.



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*Georges-Olivier Reymond,
CEO and Co-founder of
Pasqal*

For the past three years, the teams from Pasqal and Thales, supported by the [Île-de-France region](#) and [GENCI](#), have been exploring new methods to optimize planning and scheduling processes of critical systems using Pasqal’s quantum processor.

Planning (selection of policies and procedures suitable for carrying out a mission or project) and scheduling (converting project action plans into an operational timetable) are key steps in many critical applications at Thales: logistics, air traffic control, industrial automation, resource allocation and disaster recovery assistance. These calculations are extremely complex and involve long

processing times on classical computers.

Using a neutral-atom Quantum Processor Unit (QPU), the teams from Pasqal and Thales have worked closely to identify whether the performance allowed by the technology can scale up and solve problems of dimensions previously beyond the reach of classical computers.

Ultimately, Pasqal and Thales succeeded in solving a satellite planning problem on the QPU. This experiment indicated that neutral atom quantum computers are particularly well-suited for this task, as there is a natural correspondence between the satellite planning problem and the arrangement of atoms in the Quantum Processing Unit (QPU). This correspondence allows an efficient approach to solving optimization problems, thus offering new perspectives in the field of advanced satellite planning.

Georges-Olivier Reymond, CEO and Co-founder of Pasqal, said, "We are extremely proud of the achievements of our collaboration with Thales, GENCI, and the Île-de-France region in the AQUAPS project. This partnership has demonstrated the power of quantum computing in solving real-world optimization problems, opening up new perspectives for the space industry and beyond."

Frédéric Barbaresco, Quantum Algorithms & Computing Segment Leader at Thales, said, "This close collaboration, financed by the Île-de-France region quantum plan and with the support of GENCI, not only allows Thales to accelerate the maturation of a space use case described by Thales

Alenia Space (France & Italy) in the Quantum Computing for Earth Observation (QC4EO) study of the European Space Agency (ESA), but also opens the prospect of other collaborations with Pasqal to study scaling up for effective operational implementation."



About Pasqal

Pasqal is a leading Quantum Computing company that builds quantum processors from ordered neutral atoms in 2D and 3D arrays to bring a practical quantum advantage to its customers and address real-world problems. Pasqal was founded in 2019, out of the Institut d'Optique, by Georges-Olivier Reymond, Christophe Jurczak, Professor Dr. Alain Aspect – Nobel Prize Laureate Physics, 2022, Dr. Antoine Browaeys and Dr. Thierry Lahaye. Pasqal has secured more than €140 million in financing to date. To learn more about Pasqal, visit www.pasqal.com.

About Thales

Thales (Euronext Paris: HO) is a global leader in advanced technologies specialized in three business domains: Defense & Security, Aeronautics & Space, and Cybersecurity & Digital identity. It develops products and solutions that help make the world safer, greener and more inclusive.

The Group invests close to €4 billion a year in Research & Development, particularly in key innovation areas such as AI, cybersecurity, quantum technologies, cloud technologies and 6G.

Thales has close to 81,000 employees in 68 countries. In 2023, the Group generated sales of €18.4 billion.

1 Excluding Transport business, which is being divested

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