





in terms of assessment of quantum advantage. Coupled to our supercomputer Joliot Curie at TGCC, their unique 100+ qubits technology based on cold atoms will allow European researchers to assess concretely the potential of quantum computing on their scientific and industrial workloads” said together Philippe Lavocat, CEO of GENCI, and Jacques-Charles Lafoucrière, HQI, Program Manager at CEA.

“HPCQS is the ideal continuation of the plans and activities for hybrid quantum HPC computing, which we have started in Germany with JUNIQ, on a European level together with our excellent partners,” explains Prof. Thomas Lippert from JSC. “With HPCQS, we are the first in the world to realize the deep integration between HPC and quantum computing based on modular supercomputing and are bringing Europe to the forefront of research with this innovative technology.”

“The team at PASQAL is deeply honored that our Neutral atoms quantum computers have been selected by the HPCQS alliance to form the heart of the first European hybrid (quantum-classical) HPC infrastructure. We are proud to be part of a collaboration with such great partners and to contribute to positioning the European HPC community at the forefront of the quantum revolution. The role which PASQAL can play for the HPCQS alliance could not have been achieved without the strong support of the French public authorities and without their commitment to reach for excellence in quantum technologies, as formulated in The French National Quantum plan. That is why today is not just about the selection of the quantum computers of PASQAL. Today is about strengthening Europe’s strategic autonomy in quantum and HPC. We are building the HPC infrastructure of tomorrow, delivered by European champions in quantum and HPC” said Georges-Olivier Reymond, CEO of PASQAL.



*HPCQS brings together leading quantum and supercomputer experts from science and industry from six European countries.*

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HPCQS has received funding from the European High-Performance Computing Joint Undertaking (JU) under grant agreement No 101018180. The JU receives support from the European Union’s Horizon 2020 research and innovation programme and Germany, France, Italy, Ireland, Austria and Spain in equal parts.

The content provided in this press release reflects the author’s views only.

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## About HPCQS

HPCQS is part of the European High Performance Computing Joint Undertaking (EuroHPC JU) initiative – a research and innovation project within the Horizon 2020 framework program. It seeks to integrate and couple two quantum simulators, each capable of controlling more than 100 qubits, with two existing European Tier-0 supercomputers, and to deploy an open European federated hybrid HPC-QS infrastructure that will provide non-commercial cloud access to public and private European users. The project aims to develop a hybrid programming platform which allows to combine quantum simulations with classical high performance computing and thus accelerates the computing speed of classical



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supercomputers. With such powerful computers, new and better solutions for complex problems can be found, for example in the areas of simulating physics and chemistry systems, material development, personalised medicine, optimisation problems for logistics and transport, and quantum-enabled machine learning. In addition to developing the world's first deeply integrated high performance computer and quantum simulator systems to solve complex everyday problems of our society, HPCQS will strengthen Europe as an attractive business location and its global competitiveness and will participate actively in pioneering work in the field of quantum computing and simulation. For more information, visit [www.hpcqs.eu](http://www.hpcqs.eu).

## Project Key Facts

<b>Acronym</b>	HPCQS
<b>Title</b>	High-Performance Computer and Quantum Simulator hybrid
<b>Start date</b>	1 <sup>st</sup> December 2021
<b>Duration</b>	4 years
<b>Budget</b>	€ 12 Mio (50% funded by EuroHPC)
<b>Coordination</b>	Forschungszentrum Juelich, Prof. Dr Kristel Michielsen
<b>Partners</b>	FZJ, CEA, GENCI, BULL, CNR, NUIG-ICHEC, University of Innsbruck, EURICE, CNRS, Inria, CINECA, BSC, FlySight, ParityQC, Fraunhofer IAF
<b>Linked 3<sup>rd</sup> parties</b>	ParTec, Sorbonne Université, CentraleSupélec
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