Région îledeFrance

AQADOC

3rd Workshop

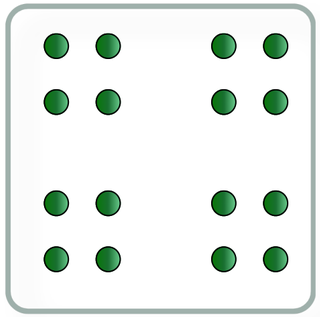
15/10/2026

Ioannis Lavdas

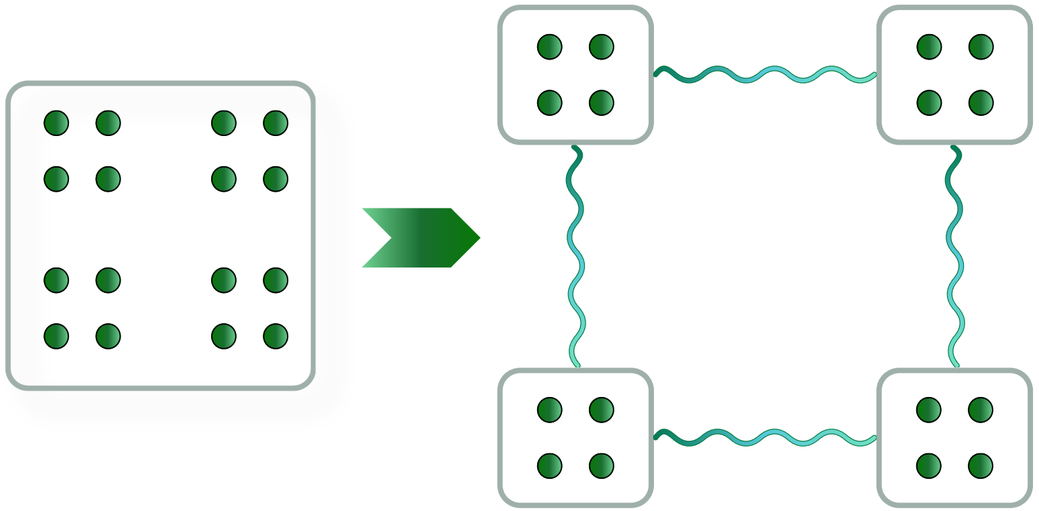
Welinq

Welinq EDF PASQAL QUANDELA SORBONNE UNIVERSITÉ le lab quantique Teratec

From Quantum Processors to Quantum-Augmented Data Centers



From Quantum Processors to Quantum-Augmented Data Centers

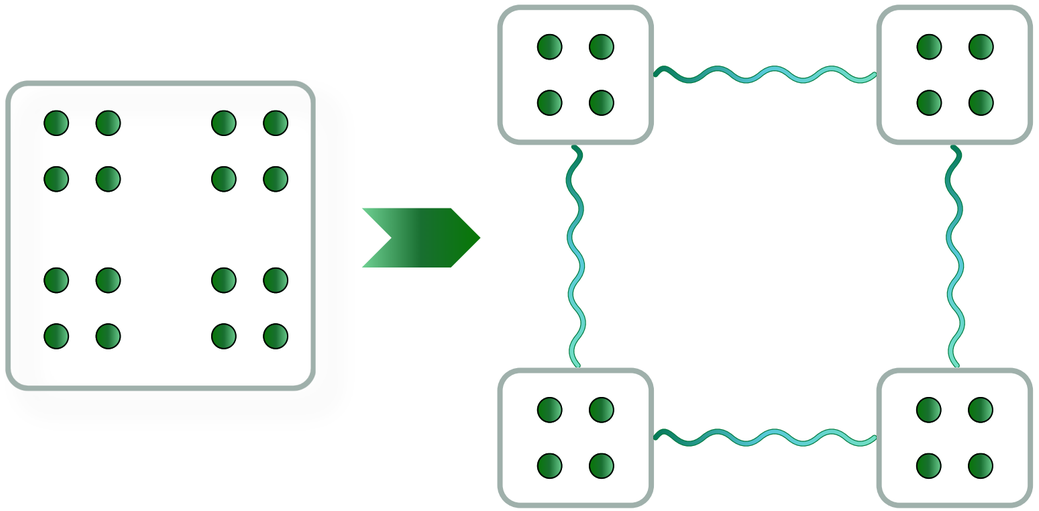


Pathway towards *scalability* & *fault tolerance*

Distributing quantum algorithms over QPU networks

Quantum comm. protocols (LOCC) for non-local operations

From Quantum Processors to Quantum-Augmented Data Centers



Pathway towards *scalability* & *fault tolerance*

Distributing quantum algorithms over QPU networks

Quantum comm. protocols (LOCC) for non-local operations

Computation mapping

Entanglement

Cross-platform computation

HW constraints

Circuit Partitioning

Qubit allocation

Fidelity

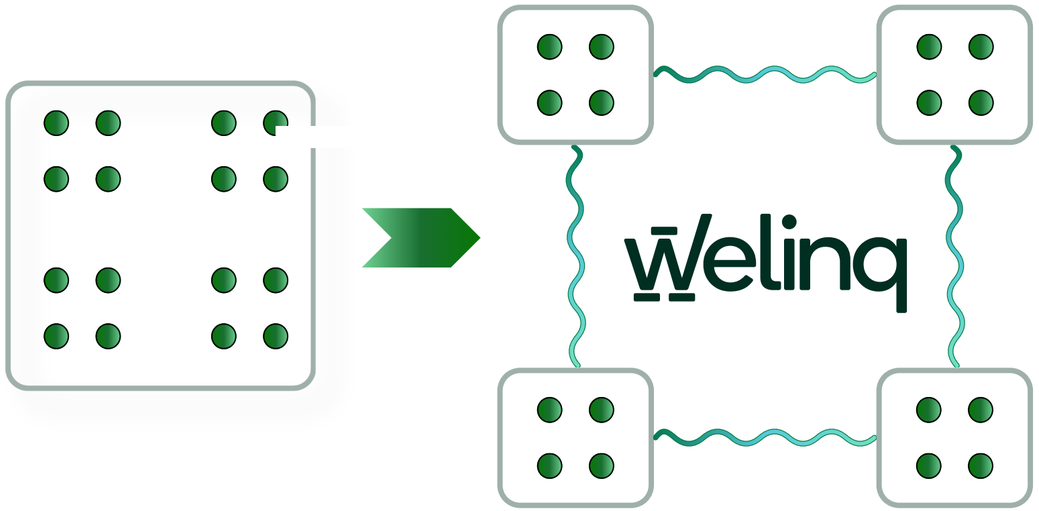
Rate

Distribution

Algorithm & protocol adaptation

Connectivity and Errors

From Quantum Processors to Quantum-Augmented Data Centers



Pathway towards *scalability* & *fault tolerance*

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About Us

2022



Funded by Tom Darras, Julien Laurat & Eleni Diamanti

2023

Seed Round

2024-2025

First Products on the market

2026

Full-stack & multi-platform quantum networking solutions

Strong Early Traction

Pasqal

EDF QUANDELA

QUTE.sk Slovak National Center for Quantum Technologies

DLR

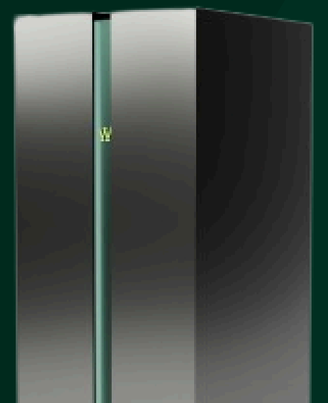
EIC Transition

EIC Accelerator

30+ experts in tech & business



Unique Products



Welinq's full-stack solution for quantum networking

Welinq

- Use Cases
- Distributed QEC
- Quantum Compiler
- Optical Quantum Network
- Quantum Memory Buffer
- Qubit-Photon Interfaces
- QPUs



AQADOC, world's largest initiative dedicated to distributed use-cases



araQne, world's most performant compiler for modular QC

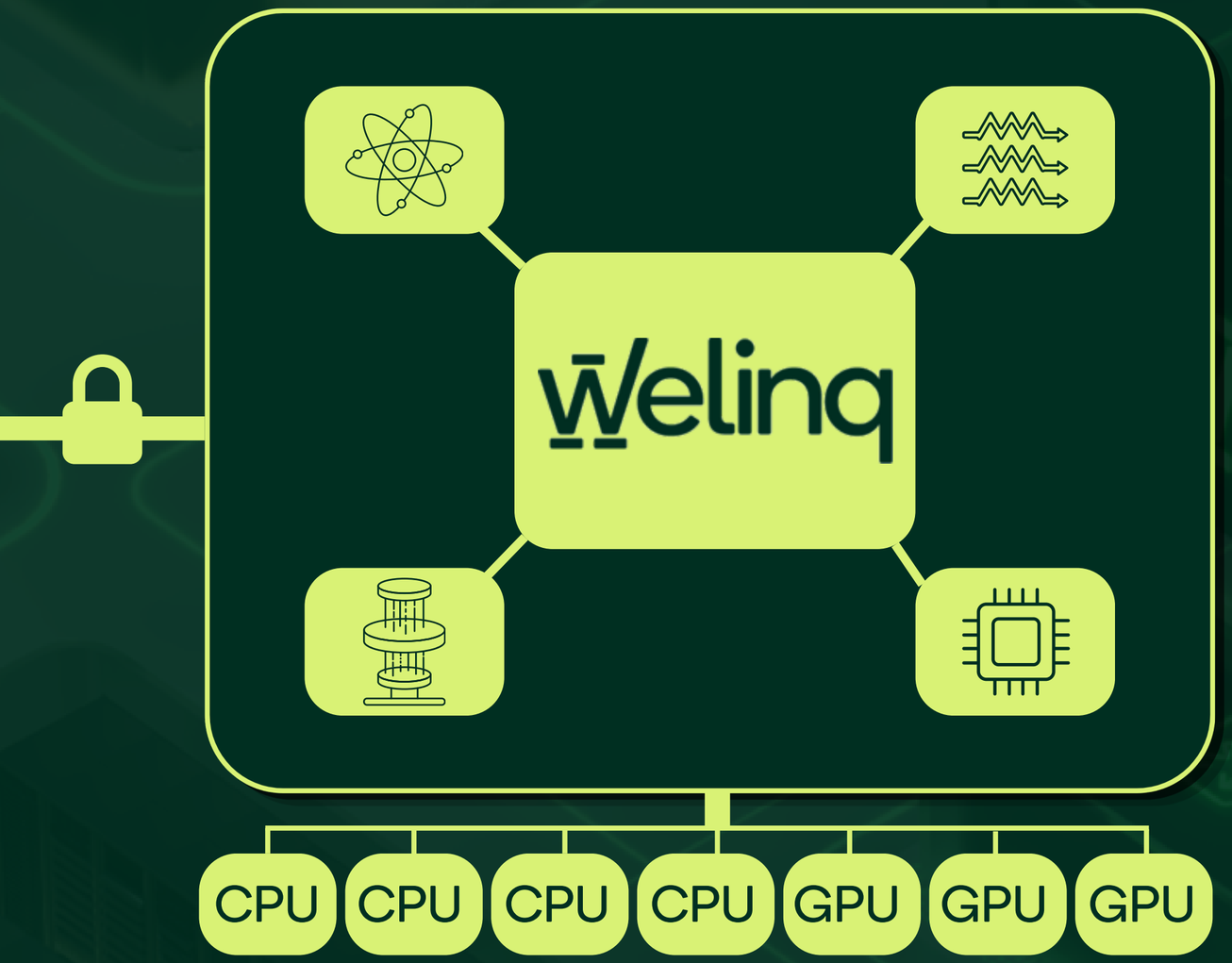


QDrive, world's most performant quantum memory



Highly-performant qubit-photon interfaces, integrated in our partners' QPUs

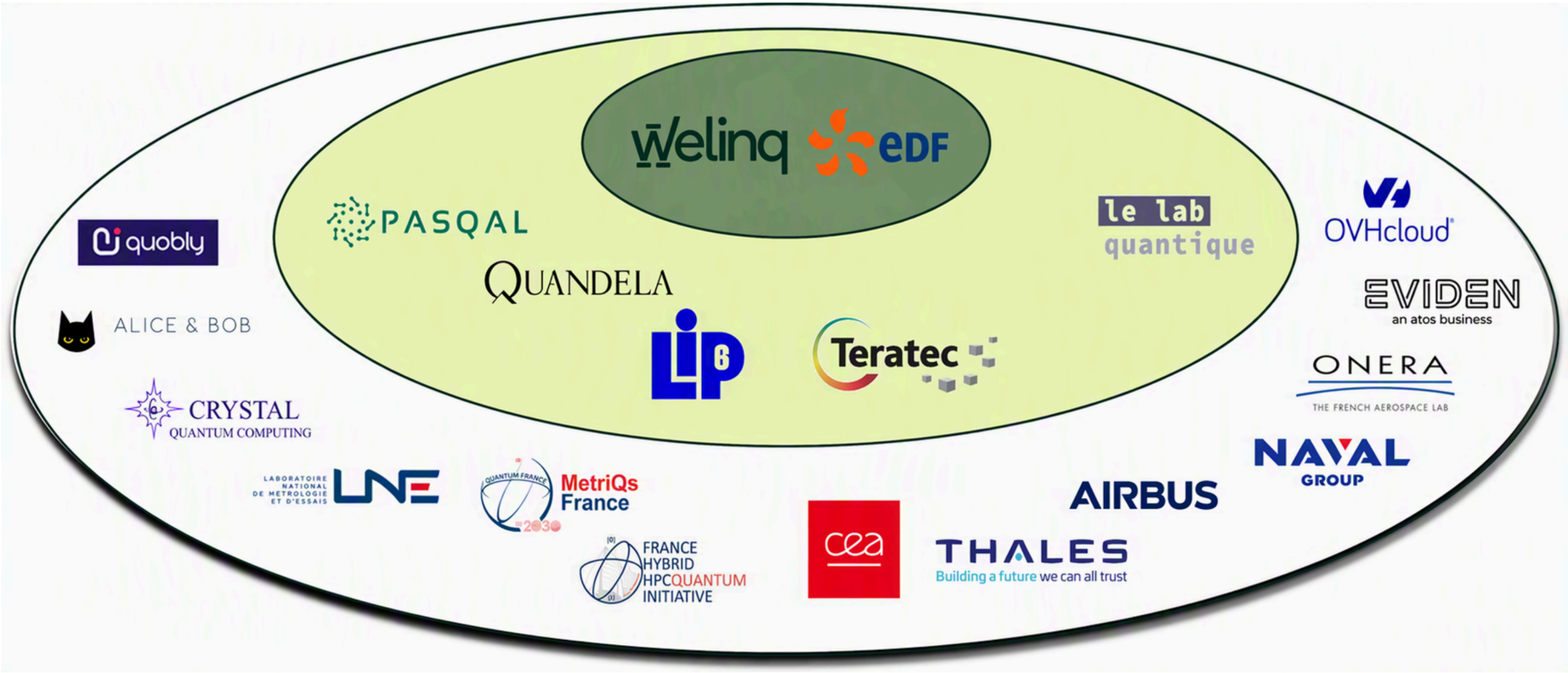
Welinq's Quantum Data Center



- Several QPUs in one system
- Combine different qubit modalities
- Adapted to HPC / Data Center
- Secured links and operations

Introducing AQADOC

Decisive initiative rendering the French Ecosystem the landmark in networking quantum computers

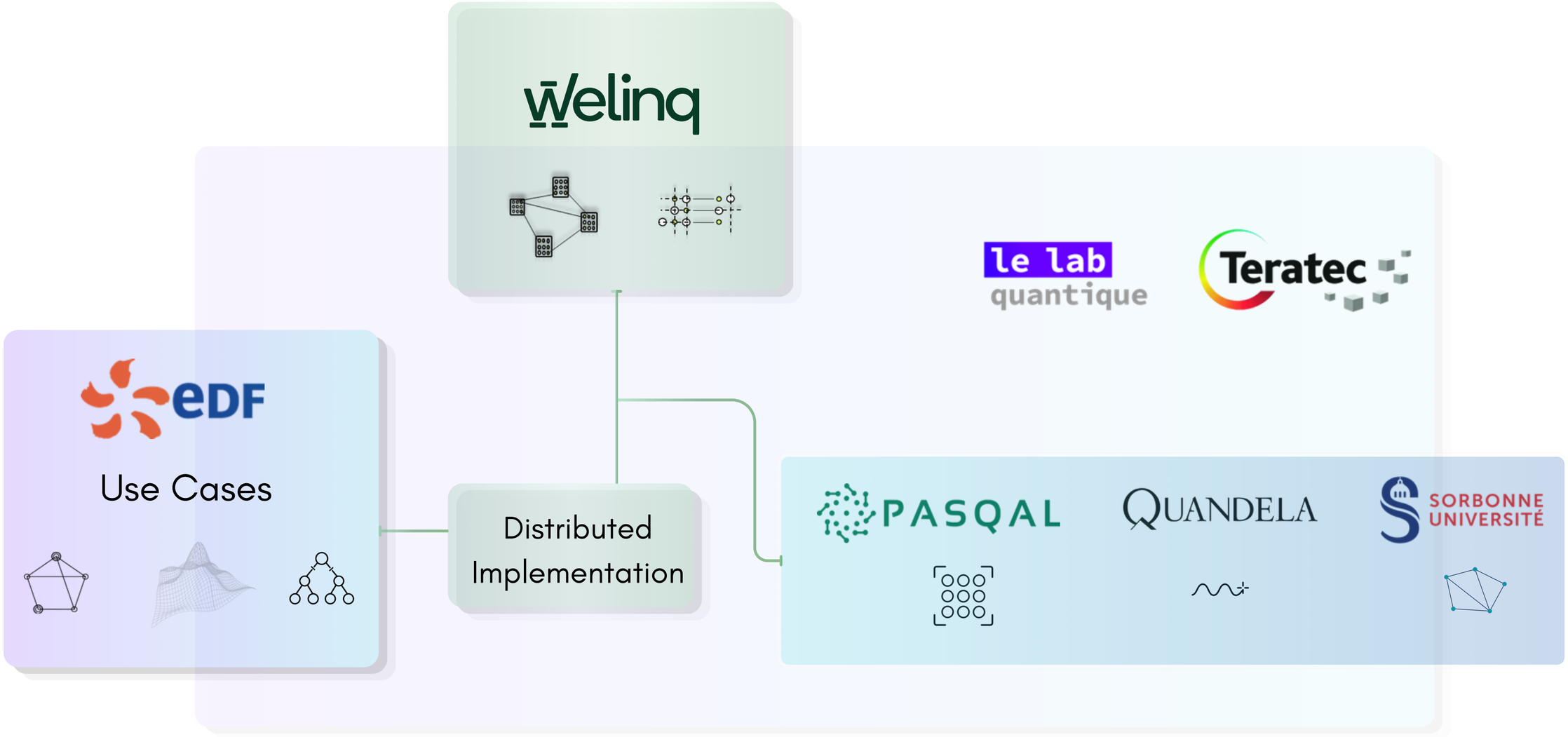


Gathering an ecosystem around Distributed Quantum Computing

Development of Distributed Quantum Algorithms for use-cases in the **energy sector**

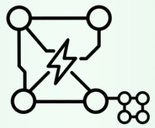
Introducing AQADOC

Decisive initiative rendering the French Ecosystem the landmark in networking quantum computers



Technical WPs

WP1.1

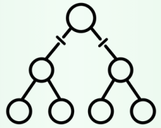


dMIS

Use Case:
Smart Charging

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WP1.2

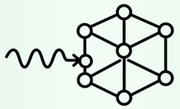


dMCS

Use Case:
Fault Trees

Welinq EDF

WP2

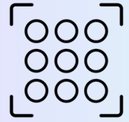


dVQE

Use Case:
Partial Differential Equations

Welinq EDF QUANDELA

WP3



interconnection specs. for neutral atom qpus.

Welinq PASQAL

WP4

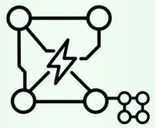


interconnection specs. for photonic qpus.

Welinq QUANDELA

Technical WPs

WP1.1

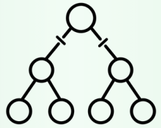


dMIS

Use Case:
Smart Charging

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WP1.2

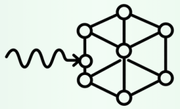


dMCS

Use Case:
Fault Trees

Welinq EDF

WP2

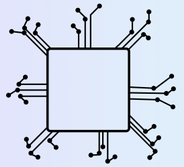


dVQE

Use Case:
Partial Differential Equations

Welinq EDF QUANDELA

WP5



Scientific Result Transfer and dissemination

Teratec Welinq le lab quantique

Program

Morning Session

Distributed Quantum Algorithms: PDE and MIS Problems
Riccardo Mengoni, Welinq

Scaling Quantum Execution with Automated Circuit Cutting: Applications to Belenos
Matthia Chiurco, Quandela

Pasqal in HPC Centers: Lessons from Qaptiva and QRMI Deployments, and the Road to Hybrid Workload Optimization
Aurélien Nober, Pasqal

Distributed Quantum Computing at CESGA
Iago Fernández Llovo, CESGA

Loss-tolerant distributed lattice surgery using fusion networks
Félix Burt, DQC APP (Imperial College)

Towards Parallel Quantum Computing for Industrially Relevant PDE Test Cases
Kyrylo Kazymyrenko, EDF

Afternoon Session

Overview of efforts we have been pursuing for making security in delegated quantum computation more hardware friendly
Harold Olivier, INRIA

A global picture of the software and hardware infrastructure needed to support classic-quantum hybrid applications
Joel Penhoat, Orange

Quantum Computing for Radar Engineering
Rami Kassab, THALES

Round Table:
End-User Needs and Expectations for the Development of Distributed Quantum Algorithms

EDF, Orange, THALES, CESGA

Thank you very much!

Enjoy the workshop!