

Quantum Computing Side Event – JURES25

Pamplona, September 16th, 2025 — 15:00–20:00 CEST

15:00–15:05	<i>Welcome and Introduction</i> Andrés Gómez Tato (CESGA)
Quantum Computing Infrastructure Presentations	
15:05–15:25	<i>MareNostrum-Ona: Access and Capabilities</i> Raúl Fuentes (BSC)
15:25–15:45	<i>Finisterrae-QMIO: Access and Capabilities</i> Andrés Gómez Tato (CESGA)
Quantum Emulators	
15:45–16:05	<i>QEmulators at SCAYLE</i> Carmén Calvo (SCAYLE)
16:05–16:30	<i>CUNQA</i> Jorge Vázquez (CESGA)
16:30–16:45	<i>Coffee Break</i>
16:45–17:00	<i>QULACS</i> Irais Bautista (CESGA)
Roundtable: Quantum Research and Applications	
17:00–17:30	Mathematical and Algorithmic Foundations of Quantum Computing
	<i>On a Mathematical Model for a Universal Digital Quantum Computer</i> Antonio Falco
	<i>Random Two-Generation in Traceless Matrices of Dimension 4</i> Andoni Zozaya
	<i>Implementation of Regev Algorithm</i> Guillermo Rivas Oliveros
	<i>Quantum Iterative Approach to the Traveling Salesman Problem</i> Arturo Rodríguez Almazán
17:30–18:05	Quantum Machine Learning and Artificial Intelligence
	<i>Network Traffic Anomaly Detection by Quantum Machine Learning</i> Alberto López García
	<i>Quantum Large Language Models via Tensor Network Disentangled</i> Borja Aizpurua Altuna
	<i>Quantum Federated Learning: A Distributed Framework for Quantum Machine Learning</i> Rocco Ballester Benito
	<i>Machine Learning Techniques for Improving Quantum Optimal Control of Superconducting Qubits</i> Antoni Alou Roman

	<i>Q-ARCO (Quantum Advanced Real-Time Car-Body Optimization)</i> Fabiola Cavaliere
18:05–18:30	Quantum Simulation of Physical and Chemical Systems
	<i>Chemical Systems on Small Quantum Computers</i> Raúl Ignacio Guerrero Avilés
	<i>Quantum Simulation of Quantum Sensing</i> Javier Cerrillo
	<i>Quantum Chemistry in Quantum Computers</i> Silvia Riera
18:30–18:55	Applied Quantum Computing and Software Engineering
	<i>Pilot Test of Quantum Algorithms for Market Segmentation and Consumer Behavior Prediction</i> Laura Sáez Ortuño
	<i>Applied Use Cases of Quantum Computing in the Context of ARQA</i> Marco Miguel Aguado Acevedo
	<i>Quantum Software Engineering: A Parallelization Proposal for Quantum Computers</i> Enrique Moguel
18:55-19:15	Open Discussion & Closing Remarks