Quantum Autumn School 2025

Welcome to QAS2025!

Join us for an intensive week of quantum computing education, featuring hands-on tutorials, expert lectures, and European quantum hardware.

📅 **November 3-7, 2025 |** 📍 **Stockholm, Sweden** *(Address details shared in email communications)*

📋 **Download Agenda (PDF)**

🎯 **Day 0: Pre-Event Information - Start Here!**

Quantum Autumn School 2025

Date:
Nov 3-7, 2025

organisers: ENCCS, NCC Denmark, NCC Lithuania

		Monday 3rd	Tuesday 4th	Wednesday 5th	Thursday 6th	Friday 7th
slot 1	9:00-10:00	arrival and coffee 8:30-9:15 **Welcome! ENCCS & QAS2025 Introduction** Karim Elgammal (ENCCS/RISE, SE) **Introduction to MIMER AI Factory** Thor Wikfeldt (MIMER/RISE, SE)	**Introduction to variational quantum algorithms: VQE, QAOA and beyond (QPE, ..., SQD)** Juan de Gracia Triviño (ENCCS/RISE, SE)	**Variational Algorithms; Designing use cases for near term quantum algorithms** Panagiotis Barkoutsos (IonQ)	**Scaling up ion trap quantum computers and quantum technologies; the case of IonQ** Panagiotis Barkoutsos (IonQ)	**Quantum Neural Networks** Stefano Markidis (KTH, SE)
slot 2	10:00-11:00	**Introduction to the European Hybrid classical/quantum HPC+AI+QC ecosystem. LUMI-Q Quantum Flagship** 10:00-10:40 Mikael Johansson (CSC, FI)	**interactive tutorial:** experiments with quantum gates, circuits and algorithms (qrisp simulation) 10:00-10:40 Juan de Gracia Triviño (ENCCS/RISE, SE)	**Controlling a quantum computer using pulses** Stefan Seegerer (IQM)	**Atomistic simulations on quantum accelerated supercomputing** 10:00-10:40 Karim Elgammal, Marc Maußner (ENCCS/RISE, SE) (infoteam, DE)	**hands-on QNNs using pennylane/classification (tutorial)** 10:00-10:40 Stefano Markidis (KTH, SE)
		coffee break 10:40-11:00	coffee break 10:40-11:00	coffee break 10:40-11:00	coffee break 10:40-11:00	coffee break 10:40-11:00
slot 3	11:00-12:00	**Overview of the HPC/QC software stack, from ready-made Q-libraries for common tasks to circuit level assembly and hardware-level coding** Miroslav Dobsicek	**Opportunities for extending quantum computing through subspace, embedding and classical molecular dynamics techniques** Thomas M. Bickley (UCL, UK)	**LUMI-Q/VLQ presentation** Miroslav Dobsicek	**Accelerated Quantum Supercomputing using NVIDIA CUDA-Q** Esperanza Cuenca-Gómez (NVIDIA)	**Quantum Reservoir computing** Ruben Pariente Bassa (SINTEF, NO)
	12:00-13:00	Lunch	Lunch	Lunch	Lunch	Lunch
slot 4	13:00-14:00	**Quantum gates, circuits and algorithms** Juan de Gracia Triviño (ENCCS/RISE, SE)	**Getting started with algorithm development on actual quantum hardware using IQM Resonance** Stefan Seegerer (IQM)	**How to use quantum computers for biomolecular free energies** Matthias Christandl (København U, DK)	**Quantum error-correction (QEC)** Mats Granath (Göteborg University)	closing The end
slot 5	14:00-15:00	**Quantum gates and circuits** Giulia Ferrini (MC2, Chalmers, WACQT, SE)	**Developing quantum algorithms with qrisp, the next generation of quantum algorithm development** Stefan Seegerer (IQM)	**Pre-panel discussion** Göran Wendin (RISE, SE) coffee break	**Quantum kernel estimation with application to disability insurance** Björn Löfdahl (SEB)	
	15:00-15:30	coffee break	coffee break	**Towards 2045: Do we still only talk about Quantum superiority?** Panel discussion Göran Wendin (RISE, SE)	coffee break	
slot 6	15:30-16:30	**Quantum Information Theory introduction, building quantum algorithm, QFT, ...** Stefano Markidis (KTH, SE)	**QAOA - theory** Ruben Pariente Bassa (SINTEF, NO)	PechaKucha presentations	**interactive tutorial:** Quantum error-correction (QEC) hands-on Moritz Lange (Göteborg University)	
slot 7	16:30-17:30	**From qubits 2000 to Nobel Prize 2025** Göran Wendin (RISE, SE)			**interactive tutorial:** Quantum kernel estimation with application to disability insurance Björn Löfdahl (SEB)	
	17:30-18:00	Reception,		Buffé		

mingling

dinner

About the school

The Quantum Autumn School 2025 (QAS2025) brings together researchers, students, and industry professionals to explore cutting-edge developments in quantum computing. This 5-day event offers a unique combination of theoretical foundations and practical experience emphasising the integration with High Performance Computing, featuring expert-led sessions that cover a range of topics from theoretical foundations to practical applications. Expect a blend of lectures, hands-on exercises, and networking opportunities, including the chance to interact with stakeholders involved with the EuroHPC JU quantum computers. It will provide a valuable opportunity to explore the latest advancements in quantum computing, where you'll learn about up-to-date topics and European quantum efforts, especially in light of the eight EuroHPC JU quantum computers announcements, and get hands-on experience.

Nordic Quantum Autumn School 2025 - Schedule >

What you will learn >

Partners & organizers

This school is organized by EuroCC competence centres of Sweden ENCCS in collaboration with EuroCC Denmark and EuroCC Lithuania. And supported by WACQT, a national research programme, coordinated from Chalmers, that aims to take Swedish research and industry to the forefront of quantum technology.

Registration & logistics

Important

- 📋 Register Now
- **Capacity**: Limited to ensure quality interaction
- **Format**: In-person event in Stockholm with zoom link (to be distributed)

Venue

The Quantum Autumn School 2025 will be held in Stockholm, Sweden. Detailed address and directions have been shared via email with registered participants.

Accommodation

There are multiple hotels in the vicinity. Below you can find some hotels in order of proximity:

- Elite Hotel Arcadia Stockholm
- Hotel Ruth
- Scandic Park

For more hotel options, visit the event page.

Public transport

Download the public transport app to purchase tickets:

- iOS App Store
- Google Play

Ticket Options:

- Single journey ticket
- 24-hour ticket
- 72-hour ticket

You can also use your regular credit card by scanning it on the metro and all buses. More information about contactless payments.

From Arlanda Airport:

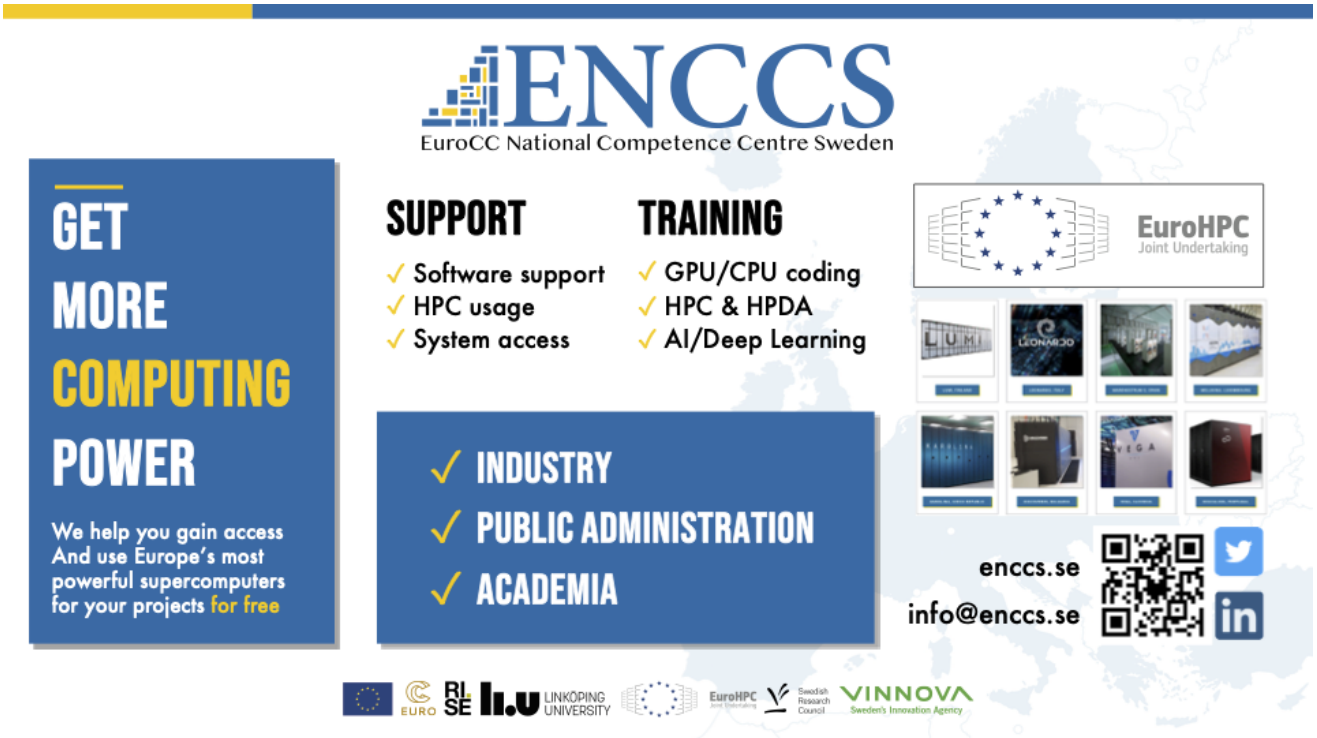
- Take a taxi
- Arlanda Express - fast train (20 minutes to T-Centralen)

- Flygbussarna - airport bus (approximately 45 minutes to T-Centralen)

Lunch & social events

- **Lunch**: Provided all days of the event
- **Social Dinner**: Wednesday, November 5th evening

About ENCCS



The EuroHPC Centre of Excellence in Computing Applications (ENCCS) develops and optimizes computational applications for current and upcoming exascale systems. We provide training, support, and expertise in high-performance computing and emerging technologies like quantum computing.

➡ See also

Learn More

- ENCCS Website
- Previous Quantum Schools

Let's stay connected

❗ Join our community and stay updated!

Stay in the loop with ENCCS for updates, training opportunities, and news about connecting HPC, AI, and quantum computing!

🌐 **Visit our website:**

- **ENCCS Website** - HPC services, on-boarding, training courses, webinars, tutorials, blog posts, and upcoming events

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Stay connected with the European quantum computing community!
