

Quantum Autumn School 2025

Date:
Nov 3-7, 2025

organisers: ENCCS,
NCC Denmark, NCC
Lithuania

Monday 3rd

arrival and coffee
8:30-9:20

Welcome!
QAS2025 Introduction
Apostolos Vasilieadis, Karim Elgammal
(ENCCS/RISE, SE)

MIMER AI Factory
Thor Wikfeldt
(MIMER/RISE, SE)

The European hybrid
HPC+AI+QC
ecosystem

Mikael Johansson
(CSC, FI)

coffee break
10:40-11:00

Software stack
for NISQ devices

Miroslav
Dobsicek

Lunch

Introduction to Quantum
Computing

Qubits, gates and circuits

Juan de Gracia Triviño
(ENCCS/RISE, SE)

Tuesday 4th

coffee/sandwich 8:30-9:00
**Hamiltonian
Simulation and
Estimation**

Juan de Gracia
Triviño
(ENCCS/RISE, SE)

interactive tutorial:
experiments with quantum
gates, circuits and algorithms

Juan de Gracia Triviño
(ENCCS/RISE, SE)

coffee break
10:40-11:00

Opportunities for
extending quantum
computing through
subspace, embedding
and classical molecular
dynamics techniques

Thomas M. Bickley
(UCL, UK)

Lunch

Getting started with
algorithm development
on actual quantum
hardware using IQM
Resonance

Stefan Seegerer
(IQM)

Wednesday 5th

coffee/sandwich 8:30-9:00
**Variational Algorithms;
Designing use cases
for near term quantum
algorithms**

Panagiotis Barkoutsos
(IonQ)

Controlling a quantum
computer using pulses

Stefan Seegerer
(IQM)

coffee break
10:40-11:00

LUMI-Q/VLQ presentation
Miroslav Dobsicek

Lunch

How to use quantum
computers for
biomolecular free
energies

Matthias Christandl
(København U, DK)

coffee break

Thursday 6th

coffee/sandwich 8:30-9:00
**Scaling up ion trap
quantum computers and
quantum technologies;
the case of IonQ**

Panagiotis Barkoutsos
(IonQ)

Atomistic simulations on
quantum accelerated
supercomputing

Karim Elgammal, Marc Maußner
(ENCCS/RISE, SE)
(infoteam, DE)

coffee break
10:40-11:00

Accelerated Quantum
Supercomputing using
NVIDIA CUDA-Q
Esperanza
Cuenca-Gómez
(NVIDIA)

Lunch

Quantum
error-correction (QEC)
Mats Granath
(Göteborg University)

Quantum kernel
estimation with
application to
disability insurance
Björn Löfdahl
(SEB)

coffee break

coffee break

interactive tutorial:
Quantum error-correction
(QEC) hands-on
Moritz Lange
(Göteborg University)

Towards 2045: Do
we still only talk
about Quantum
superiority?

Panel discussion
Göran Wendum
(RISE, SE)

PechaKucha
presentations

(in-person
only)

interactive tutorial:
Quantum kernel
estimation with
application to
disability insurance
Björn Löfdahl
(SEB)

Friday 7th

coffee/sandwich 8:30-9:00

**Quantum Neural
Networks**

Stefano Markidis
(KTH, SE)

hands-on QNNs using
pennylane/classification
(tutorial)

Stefano Markidis
(KTH, SE)

coffee break
10:40-11:00

Quantum Reservoir
computing
Ruben Pariente Bassa
(SINTEF, NO)

Lunch

Lunch

Lunch

closing

The end

coffee break

coffee break

Towards 2045: Do
we still only talk
about Quantum
superiority?

Panel discussion
Göran Wendum
(RISE, SE)

PechaKucha
presentations

(in-person
only)

coffee break

coffee break

interactive tutorial:
Quantum error-correction
(QEC) hands-on
Moritz Lange
(Göteborg University)

Quantum Algorithms:
A Top-Down
Approach

Stefano Markidis
(KTH, SE)

QAOA - theory

Ruben Pariente
Bassa
(SINTEF, NO)

From qubits 2000
to Nobel Prize
2025

Göran Wendum
(RISE, SE)

Reception,
mingling

Buffé
dinner

slot 1

slot 2

slot 3

slot 4

slot 5

slot 6

slot 7