

18th Advanced School on Parallel Computing Feb 14th – 18th 2022

Agenda

DAY 1:

9:30	Introduction to Quantum Computing (QC) (Part 1) (Ottaviani)
11:00	Break
11:30	Introduction to Quantum Computing (QC) (Part 2) (Ottaviani)
13:00	Lunch
14:00	Introduction to Quantum Computing (QC) (Part 3) (Ottaviani)
15:30	Break
16:00	General Purpose Quantum Algorithms (Part 1) (Mengoni)
17:30	End

DAY 2:

9:30	General Purpose Quantum Algorithms (Part 2) (Mengoni)
11:00	Break
11:30	General Purpose Quantum Algorithms Hand-on Session: IBM Qiskit (Mengoni)
13:00	Lunch
14:00	Quantum Error Correction (Mengoni)
15:30	Break
16:00	Data Reply(Massimiliano Incudini, Martina Rossi): "Using Shor's algorithm on near term Quantum computers"
17:30	End

DAY 3:

9:30	Introduction to Quantum Annealing (Ottaviani)
11:00	Break
11:30	Quantum Annealing Hand-on Session: D-Wave Ocean (Ottaviani)
13:00	Lunch
14:00	Quantum Annealing applications (Part1) (Mengoni)

15:30	Break
16:00	Quantum Annealing applications (Part2) (Mengoni)
17:00	Data Reply (Luca Asproni): "Quantum annealing Applications and MegaQUBO "
17:30	End

DAY 4:

9:30	- Quantum Computing with neutral atoms - Hands-on Session: Pasqal Pulser (Mengoni)
11:00	Break
11:30	Near Term Quantum algorithms (Part 1) (Mengoni)
13:00	Lunch
14:00	Near Term Quantum algorithms (Part 2) (Mengoni)
15:30	Break
16:00	Links Foundation (Chiara Vercellino, Andrea Scarabosio, Paolo Viviani) : "Quantum Optimization with Rydberg atoms"
17:30	End

DAY 5:

9:30	University of Padua (Marco Ballarin): "HPC Tensor Network emulation of Quantum Computers"
11:00	Break
11:30	Cineca's Vision on HPC and QC (Mengoni, Ottaviani)
12:30	Final remarks (Ottaviani)
13:00	End

Cineca Speakers/Organizers: Daniele Ottaviani, Riccardo Mengoni

Data Reply Speakers: Martina Rossi, Massimiliano Incudini, Luca Asproni

LINKS foundation: Chiara Vercellino, Andrea Scarabosio, Paolo Viviani

University of Padua: Marco Ballarin