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An Introduction to Quantum computing

Friday, 3 May 2024 12:00 (45 minutes)

Syllabus outline:
Participants will learn about quantum phenomena, which govern nature. These quantum phenomena will be explained through photon's interference, which will be introduced by double-slit and double-beam splitter experiments. Next, classical computation will be compared to quantum computation. Quantum bit will be introduced. Participants will learn through an example of the quantum algorithm, presented in real quantum computer and in a quantum computer simulator.

Objective competences:
Learn about quantum nature of photons and possibility of application in quantum computing
Learn about the definition of quantum bit (qubit)
See a tutorial on quantum programming in quantum computer or quantum computer simulator

Intended learning outcomes:
Understand the difference between classical and quantum computing
Understanding what is qubit
Obtain an idea of quantum computing algorithm

Literature
[1] P. Kaye, R. Laflamme, and M. Mosca, An Introduction to Quantum Computing, Repr (Oxford University Press, Oxford, 2010).

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