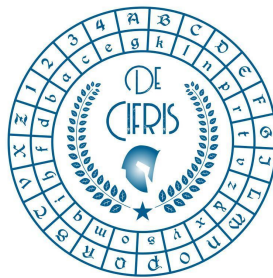


PostQuantumCifris



**Tuesday 7<sup>th</sup> June 2022 – at 2:00 p.m.**  
**Online Seminar via Zoom**

**Andrea Mari**

**Unitary Fund**

## **Quantum computers in theory and in practice**

**Abstract:** This introductory seminar will address two main questions: "What is a quantum computer, in theory?" and "What is a quantum computer, in practice?". Quantum computers are physical machines that exploit the laws of quantum mechanics to perform computations. Their theory is well established and, in principle, quantum computers can solve some problems exponentially faster than conventional (classical) computers. For example, an ideal quantum computer can factorize an integer in polynomial time and this fact has huge implications for most current cryptographic algorithms. In practice however, building a quantum computer is technically very hard due to the strong sensitivity of quantum effects to environmental noise. In the last ~5 years, experimental progress on quantum technologies has shown an impressive acceleration and noisy prototypes of real quantum computers already exist and are available to users. Moreover, a large ecosystem of open-source quantum software has grown in this field, such that running a quantum computation is now as simple as running a Python script.

But what is the computational power of noisy quantum computers? How can we mitigate the effects of noise? How far in the future is the realization of a universal fault-tolerant quantum computer?

**Registration for the online event to be made by 6<sup>th</sup> June via the following link:**

**[click here](#)**

*Subscribers will receive the Zoom ID one hour before the start of the event*

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### **CONTACTS**

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