

Near-Term Quantum Computers: Practical Applications and Overcoming Current Limitations

Wednesday, 18 September 2024 14:30 (2 hours)

In this lecture, we will explore the rapidly evolving landscape of near-term quantum computers, highlighting both the potential and the critical challenges that define the current state of quantum technology. The first part will provide a comprehensive introduction to near-term quantum devices, outlining their role in the broader quest for fault-tolerant quantum computation. We will discuss the significant progress made so far, focusing on the inherent limitations these systems face, such as noise and the high cost of accurate measurements. In the second part, the focus will shift to cutting-edge research aimed at overcoming these obstacles. We will delve into advanced techniques for error mitigation and informationally complete measurements, showcasing state-of-the-art methods and the latest breakthroughs from our research team. This session will provide a deep dive into the practical approaches that are paving the way for more reliable and scalable quantum computing in the near future.

Presenter: ROSSI, Matteo (Algorithmiq Ltd, Finland)