SORS: "Solving Quantum Error Correction"

Abstract

In this talk I will introduce quantum computing and explain the need for quantum error correction ? the process by which we detect and account for errors in a quantum computer. The decoder is a central element of this process. It is the decoder's job to infer the quantum errors that occurred from the indirect measurements we can make ? a job that must be done as accurately as possible at MHz frequency. I will explain the main challenges that need to be overcome to build such decoders, and introduce some of our recent results boosting the accuracy of the system by better modelling and engineering the errors that occur.

Short Bio
After obtaining a PhD in General Relativity from the University of Barcelona, Joan Camps held research positions at Durham University, Cambridge University, and University College London. His research shifted from classical to quantum gravity, more specifically to quantum-informational aspects of gravity. In 2019 he joined Riverlane, then a startup in Cambridge, with as a mission making quantum computing useful, faster. At Riverlane, Joan works on quantum algorithms and quantum error correction.

Speakers

Speaker: Dr. Joan Camps Barjau (Quantum Computing Researcher at Riverlane Ltd, in Cambridge UK)
Host: Cedric Bhihe, Wave Phenomena Group, CASE Department, BSC
Barcelona Supercomputing Center - Centro Nacional de Supercomputación