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NITheCS Colloquium
Monday, 15 November 2021, 16h00 – 17h00
Prof Aleks Kissinger (Oxford University)

"Picturing Quantum Software"

ABSTRACT

The design, optimisation and verification of quantum circuits are important tasks in developing efficient, correct software to run on quantum computers. In this talk, I will survey some of the latest developments in applying the ZX-calculus - a graphical theory of interacting quantum processes - to three important problems in quantum software: the optimisation of quantum circuits, functional verification of circuits, and heuristics for efficient classical simulation.

BIOGRAPHY

Aleks is an Associate Professor of Quantum Computing in Oxford's Computer Science Department, where he leads an 11-member group focused on quantum software and the foundations of physics.

He is the co-author of *Picturing Quantum Processes* (a.k.a. "The Dodo Book") and a lead developer of the PyZX open-source quantum circuit transformation tool. He also serves as PI for ongoing projects on quantum circuit optimisation and the quantum information structure of spacetime.

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