

Tuesday, September 22, 2:30 pm

Speaker: Matthias Le Dall

Position: Data Scientist

Institution: Scotiabank

Title: How a century-old theory is about to revolutionize the world (again).

Abstract:

At more than 100 years-old, the theory of quantum mechanics remains widely elusive to our intuition, harboring predictions that are stranger than science fiction, and yet is also the most accurate theory of the microscopic world. It is the theory that has enabled countless revolutionizing technologies of the 20th century, and is behind yet another emerging technology that is about to revolutionize the world: Quantum Computing.

The power of quantum computers lies in their ability to tackle problems whose combinatorial complexity explodes exponentially with their size. The Traveler's Salesman Problem is a famous example of this, and most relevant to the transportation industry, but other industries also have their own flagship problems, such as portfolio optimization in finance. Alongside the growing demand for quantum solvers, a plethora of big and small companies have been democratizing the technology by providing easy-to-use software tools allowing anyone to access quantum hardware.

In this talk, I will first describe how the basic principles of quantum mechanics make quantum computers so powerful, and then show how the widely available open-source quantum software packages can be leveraged today to impact various industries