

# QMath14: Mathematical Results in Quantum Physics

Aarhus University, 12–16 August 2019

## Abstract

Mini-course

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### *A quantum information travel guide for mathematicians*

The aim of this mini-course is to present some of the main directions of research in quantum information theory, with a focus on the mathematical techniques.

#### **Outline:**

1. Introduction
2. Quantum cryptography and communication
  - 2.1. Setup and main achievements
  - 2.2. Mathematical toolbox
3. Quantum computation and simulation
  - 3.1. Setup and main achievements
  - 3.2. Mathematical toolbox
4. Connections to other areas of mathematical physics
5. A selection of open problems