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**FANCH COUDREUSE**, ENS de Lyon

*Quantum Optimal Transport and applications to Quantum Gaussian states*

Optimal Transport has proven to be a powerful tool in a wide range of mathematical subjects, and its application to the non-commutative and Quantum setting has attracted significant interest in recent years. In this seminar, we will provide a comprehensive introduction to the different formulations of Quantum Optimal Transport, from basic transport to regularized optimal transport. We will discuss the advantages and limitations of each formulation. In particular, we will focus on the transport of Gaussian states, which are commonly used in quantum information theory and quantum optics. Through this example, we will explore the key concepts and techniques involved in Quantum Optimal Transport, and discuss open research questions and future directions in the field.