



# Ypatia 2022 - June 8-10, 2022

## mercredi 8 juin 2022

**Abstract: The optimal transport problem studied by Monge (1781) and Kantorovich (1942) provides a general method for metrizing the set of Borel probability measures on  $\mathbf{R}^d$ . The purpose of this talk is to present an analogous method for comparing density operators on  $L^2(\mathbf{R}^d)$ , which are the quantum mechanical analogues of probability measures on the phase space  $\mathbf{R}^d \times \mathbf{R}^d$ . We shall discuss some properties of the “pseudo-distance” on quantum states obtained in this way, and show applications to some problems in quantum dynamics. (Based on joint works with E. Caglioti, C. Mouhot, T. Paul). (16:30 - 17:30)**