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**UNIVERSITÄT
BERN**

Philosophisch-
naturwissenschaftliche Fakultät

Departement Mathematik und Statistik

Mathematisches Institut

Mathematical Colloquia

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Monday, 04 April 2022

17:15 h, lecture room B6 (ExWi)

Prof. Dr. Daniel Virosztek, Rényi Institute of Mathematics

Optimal transport: classical and quantum

Abstract: The first part of the talk will be a brief review of the classical (Monge-Kantorovich) optimal transport problem: static and dynamic interpretations, connections to fluid mechanics, the striking difference between optimal transport strategies for convex and concave transport costs, etc.

Then we turn to the geometry of Wasserstein spaces over nice (e.g., discrete, compact, Hilbert) spaces and describe their isometry groups. This is joint work with Gyorgy Geher (Riverlane, Cambridge) and Tamas Titkos (Renyi).

The final part is dedicated to quantum optimal transport. We will discuss, among others, the 1-1 correspondence of quantum channels and quantum transport plans (Choi-Jamiolkowski isomorphism) and the "quantum optimal transport is cheaper" phenomenon.