Transportation of measure has to do with the problem of transferring some pile of sand of a certain shape to a hole in the ground with some other shape. Optimality of the transport plan is linked with the choice of a cost function measuring the cost of transferring a unit of sand from one location to another. Amazingly, for some classical cost functions, the transport problem has a very beautiful geometric solution, and admits a so-called "potential function" which can be used as a tool to prove many useful geometric inequalities (for the quadratic cost this is the Brenier theorem and the Brenier map). We will discuss this theory and present some new Rockafellar-type theorem proved recently jointly with Sadovsky and Wyczesany which allows dealing with "transportation with obstacles", namely where some of the moves are prohibited, completing a piece of the puzzle which was missing. In the remaining time I will also present some new duality results which arise from this point of view.

Monday, November 28, 2022 11:30am - 12:30pm
ISTA Campus Raiffeisen Lecture Hall