Mathias Beiglböck. Blackboard talk, Abstract :

We adapt ideas and concepts developed in optimal transport (and its martingale variant) to give a geometric description of optimal stopping times τ Brownian Motion subject to the constraint that the distribution of τ is a given distribution μ. The methods work for a large class of cost processes. (At a minimum we need the cost process to be measurable and adapted. Continuity assumptions can be used to guarantee existence of solutions.) We find that for many of the cost processes one can come up with, the solution is given by the first hitting time of a barrier in a suitable phase space. As a by-product we recover the classical solution of the inverse first passage time problem given by Anulova.