1023-35-1725   **Wilfrid Gangbo** and **Truyen V. Nguyen*** (`tnguyen@math.gatech.edu`), School of Mathematics, Georgia Institute of Technology, 686 Cherry street, Atlanta, GA 30332, and **Adrian Tudorascu**. *Minimal action for Lagrangians in the Wasserstein space of probability measures.*

In this talk we will consider special Lagrangians on the tangent bundle of the Wasserstein space of probability measures. We study its associated action functionals and the problem of minimizing the action when two endpoints are prescribed. We will discuss the existence, uniqueness of minimizers and the Euler-Lagrange equations. It turns out that the Euler-Poisson system arising in modeling the dynamics of a plasma is indeed the Euler-Lagrange equations in this infinite dimensional context. (Received September 26, 2006)