962-60-1124   **Erhan Cinlar*** (`ecinlar@princeton.edu`), Princeton University, Operations Research and Financial Engg. Dept., Princeton, NJ 08544. *Mass Transport by Stochastic Flows.* Preliminary report.

Brownian flows and their generalizations have been of much interest in the recent literature. In particular, mass transport by a stochastic flow is of interest in studies of turbulent transport. Given a stochastic flow and a spatially distributed mass being carried by the flow, the motions of the centroid and of the dispersivity matrix are investigated to understand the characteristics of the mass dispersion. Of particular interest is the case where mass consists of a system of particles. The motion of the particle system and its clustering tendencies or dispersion are useful indicators of the characteristics of the underlying flow. When the particles are allowed birth and death and branching, one obtains manifold generalizations of such notions to the cases where particles are highly dependent on each other. (Received October 02, 2000)