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Minneapolis, MN 55455. *Random motion along co-adjoint orbits*. Preliminary report.

We study Lagrangian motion generated by a random Eulerian motion on the co-adjoint orbit of a (finite dimensional) group  $G$ . Our choice of random Eulerian motion preserves the energy. We discuss long-time behavior of the Lagrangian motion. Examples are shown in the case of both compact and non-compact groups. Our attempt could be viewed as an effort (in finite dimensions) towards the understanding of (inviscid) turbulence for ideal incompressible fluids. (Received December 14, 2014)