Lie cascades and Random Dynamical Systems

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Lie cascades were defined as a broad generalization of scalar cascades (Schertzer and Lovejoy 1995, Tchiguirinskaia and Schertzer, 1996) with the help of (infinitesimal) sub-generators being white noise vector fields on manifolds, instead of being white noise scalar fields on vector spaces.

Lie cascades were thus closely related to stochastic flows on manifolds as defined by Kunita (1990). However, the concept of random dynamical systems (Arnold,1998) allows to make a closer and simpler connection between stochastic differential equations and the dynamical system approach.

In this talk, we point out some relationships between Lie cascades and random dynamical systems, and therefore to dynamical system approach.