

Stochastic flows and rough differential equations on foliated spaces

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In this talk we construct stochastic flows associated with SDEs on compact foliated spaces via rough path theory.

In 2015 Suzuki constructed “leafwise diffusion processes” on compact foliated spaces via SDE theory. However, it is not known whether the stochastic flows associated to them exist or not. The main difficulty is in showing the existence of continuous modifications. The reason is that Kolmogorov-Centsov criterion is not available in this case since a foliated space is just a locally compact metric space.

From the viewpoint of rough path theory, however, there is in fact not much difficulty here and this problem is naturally and easily solved.

Since stochastic flows play a very important role in stochastic analysis on manifolds, we hope our result would open the door for stochastic analysis on foliated spaces.

This is a joint work with Kiyotaka SUZAKI (Kumamoto Univ.) and can be found at [arXiv:1910.09962](https://arxiv.org/abs/1910.09962).