## EQUIVALENCE OF VISITATION MEASURES AND GEOMETRY OF COMPACTS IN STOCHASTIC FLOWS WITH INTERACTION

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The talk is devoted to description of the evolution of compact sets in stochastic flow with interaction. The flow with interaction is the solution to the following SDE introduced by A.A. Dorogovtsev [1]

$$dx(u,t) = a(x(u,t),\mu_t) dt + \int_{\mathbb{R}^d} b(x(u,t),\mu_t,p) W(dp,dt),$$
$$x(u,0) = u \in \mathbb{R}^d, \quad \mu_t = \mu_0 \circ x(\cdot,t)^{-1}, \quad t \ge 0.$$

Here W is a space-time Gaussian white noise, coefficients are Lipschitz with respect to space and measure-valued argument. The asymptotic behaviour of  $\mu_t$ ,  $t \ge 0$ , was studied in [1] as a random process in the space of measures. We propose to study geometric properties of  $\mu_t$ . For example, when  $\mu_0$  is a measure concentrated in a finite number of points, it is natural to look at the evolution of a configuration of these points. We are doing this considering lifting of points and measures on  $\mathbb{R}^d$  to the reproducing kernel Hilbert space. The asymptotic behaviour of quadratic entropy of obtained compacts is studied. Here we use the notion of equivalence of increasing sequences of measures from [3].

- 1. Dorogovtsev A. A. Measure-valued Processes and Stochastic Flows. Berlin, Boston: Walter de Gruyter GmbH, 2024, 228 p.
- 2. Dorogovtsev A.A. Entropy of stochastic flows. Mat. Sb., 2010, 5, 17-26.
- 3. Dorogovtsev A.A. Some characteristics of sequences of iterations with random perturbations. Ukr. Math. J., 1996, 48, No.8, 1182–1201.