

# **”Modified Arratia Flow and Wasserstein Diffusion”**

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Abstract: We introduce a modification of a system of coalescing 1D Brownian motions starting from every point of the unit interval.

In contrast to previous models like Arratia flow or Brownian Web in our model each particle carries a mass which is aggregated upon coalescence and which determines the particle’s diffusivity in an inverse proportional way.

The corresponding measure valued process solves in weak sense a singular measure valued SPDE similar to the Wasserstein diffusion, which constructed in a previous work together with Sturm. In particular, as our main result we show a Varadhan formula for the heat kernel with the quadratic Wasserstein distance as rate function. This result is established by large deviation techniques in an infinite dimensional S(P)DE set up with discontinuous coefficients.

This is joint work with Vitalij Konarovskiy (Leipzig).