

**Workshop in Stochastic Analysis and  
Applications**

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**Quantitative estimates of propagation  
of chaos for stochastic systems with  
 $W^{-1,\infty}$  kernels.**

**Abstract**

We derive quantitative estimates proving the propagation of chaos for large stochastic systems of interacting particles. We obtain explicit bounds on the relative entropy between the joint law of the particles and the tensorized law at the limit. We have to develop for this new laws of large numbers at the exponential scale. But our result only requires very weak regularity on the interaction kernel in the negative Sobolev space  $\dot{W}^{-1,\infty}$ , thus including the Biot-Savart law and the point vortices dynamics for the 2d incompressible Navier-Stokes.