

Abstract Submitted
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Experimental study of multi-particle statistics and structures in turbulence HAITAO XU, NICHOLAS OUELLETTE, KELKEN CHANG, EBERHARD BODENSCHATZ¹, Max-Planck Institute for Dynamics and Self-Organization, Goettingen 37073, Germany, INTERNATIONAL COLLABORATION FOR TURBULENCE RESEARCH COLLABORATION — We report our recent optical Lagrangian Particle Tracking (LPT) experiments in a laboratory von-Karman water flow with Taylor microscale Reynolds numbers up to 815. The LPT technique provides direct Lagrangian measurements of passive tracer particles in the flow, from which multi-particle statistics, both Lagrangian and Eulerian, can be obtained. In this talk, we present results of multi-point geometrical statistics following Lagrangian trajectories. We also investigate the structure of turbulence through Eulerian multi-point correlation functions. This work is supported by NSF and Max Planck Society (MPG).

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