

Abstract Submitted
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Eulerian statistics from Lagrangian dynamics FEDERICO TOSCHI, Technische Universiteit Eindhoven, The Netherlands, LUCA BIFERALE, University of Tor Vergata, Roma, Italy, ENRICO CALZAVARINI, ENS-Lyon, France, ANDREA SCAGLIARINI, University of Tor Vergata, Roma, Italy — Some statistical properties of fluid dynamics turbulence are very difficult to study usually because of the extremely low signal to noise ratio. Here we show how the Lagrangian approach can help unravelling elusive statistics of Eulerian turbulence. Studying the collective dynamics of bunches of light particles we are able to measure the time of life of Eulerian vortex filaments (arXiv:0908.0205). By means of Lagrangian tracers we are able to measure the full multi-scale and multi-time correlation functions in 3D turbulence.

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