

Abstract Submitted
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A peek into the Lagrangian pair dispersion in turbulence at infinite Reynolds number SHIYONG TAN, ASHWANTH SALIBINDLA, ASHIK ULLAH MOHAMMAD MASUK, RUI NI, Johns Hopkins University, NI RESEARCH GROUP TEAM — Observing the Richardson-Obukhov cubic scaling law in experiments at large Reynolds number is challenging because it requires tracking particles for a long time before the finite view area starts to play a role. We approached the problem from a different direction by reducing the initial separation between two particles in a water tunnel equipped with a high-concentration particle tracking system. By following particles with almost two and half decades of time scales, we successfully observed the Richardson scaling for the initial separation at about 3η . The dependence of this scaling exponent versus different initial separation will be discussed, and this dependence provides a new way to study the dispersion dynamics and intermittency at finite and infinite Reynolds number.

Shiyong Tan
Johns Hopkins University

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