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Particle dispersion in an inhomogeneous turbulent flow PETER HUCK, ROMAIN VOLK, Ecole Normale Superieure de Lyon — An experimental study of the von Kármán swirling flow in counter rotation at $R_\lambda = 200$ is presented and investigates the interaction of tracer particles with a spatially inhomogeneous environment. Using ombroscopic PTV, eulerian conditioning of lagrangian trajectories permits visualization of the well known stagnation point topology and allows the calculation of lagrangian statistics which reveal the small scale anisotropy characteristic of this flow. Neighboring regions dominated by rotation or shear are also presented as anisotropy varies with respect to the predominate mean flow. The length of particle tracks needed to estimate velocity correlations is considerable and renders the rms velocity non stationary as particles explore their inhomogeneous surroundings. We conclude on the role of inhomogeneity and non stationarity in the concomitant process of particle dispersion.

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