
Rotation of long fibers in turbulent flows

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Abstract

The dynamics of particles in turbulent flows is a fundamental question with many applications from cloud formation to paper industry. Since 2010s, more and more studies are devoted to anisotropic particles and especially to their rotational dynamics. For particles smaller than the Kolmogorov length, it has been shown that anisotropic particles tend to have their major axis parallel to the local vorticity. For particles larger than the Kolmogorov length, such preferential orientation remains an open question. In this presentation, I will present the first measurements of both tumbling and spinning of long fibers in turbulence that allows to answer this question.

Keywords: turbulence, particle laden flows, anisotropic particles

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