

Abstract Submitted  
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**Acceleration PDFs of particles in rotating turbulent convection<sup>1</sup>**

HERMAN CLERCX, PRASAD PERLEKAR, VALENTINA LAVEZZO, FEDERICO TOSCHI, Physics Department, Eindhoven University of Technology — Particle dispersion in buoyancy-driven rotating turbulent flows has direct relevance for many industrial and environmental applications. We have used a Lattice Boltzmann Method coupled with Lagrangian particle tracking algorithm to investigate the behaviour of passive and inertial particles released in turbulent rotating Rayleigh-Bénard (RB) convection. The flow domain is horizontally periodic and vertically confined. Both the gravity and the rotation vector are oriented in the vertical direction. Here we present the results of the acceleration PDFs of particles in both non-rotating and strongly rotating RB convection. It is found that the bulk acceleration PDF in non-rotating RB turbulence is like in homogeneous isotropic turbulence whereas rotation introduces anisotropy similar to acceleration PDFs obtained from experiments in (isothermal) forced rotating turbulence [1]. These results and those obtained for inertial particles will be discussed.

[1] L. Del Castello and H.J.H. Clercx, *Phys. Rev. Lett.* **107**, 214502 (2011).

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