

Abstract Submitted  
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**Lagrangian analysis of turbulent rotating convection** HADI RAJAEI, RUDIE KUNNEN, HERMAN CLERCX, Eindhoven University of Technology — This study focuses on exploring how the flow transition from one state to the other in rotating convection will affect the Lagrangian statistics of (fluid) particles. Up to now, the global parameters like the overall heat transfer or the wind Reynolds number are used to characterize the different turbulent states. However, it is obvious that the flow transition from weakly rotating Rayleigh-Benard (RB) to strongly rotating RB is also reflected in the Lagrangian dynamics of immersed tracer particles. We have employed 3D Particle Tracking Velocimetry (3D-PTV) in a water-filled cylindrical tank of equal height and diameter 200 mm. The measurements are performed in the central volume of  $50 \times 50 \times 50 \text{ mm}^3$  at a Rayleigh number  $Ra = 1.28e9$  and Prandtl number  $Pr = 6.7$ . We are reporting the velocity and acceleration pdfs for different Rossby numbers and how transition from weakly rotating RB to strongly rotating RB affects the acceleration and velocity pdfs.

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