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Spatio-Temporal Segregation-Pattern Drift in Particle-Laden Rimming Flow ESTELLE GUYEZ, PETER J. THOMAS, Fluid Dynamics Research Centre, School of Engineering, University of Warwick — In Ref. [1] we described a new banding pattern developing from particle segregation in particleladen flow inside a partially fluid-filled, horizontal, rotating cylinder. Hitherto we believed that the pattern was quasi stationary once developed. However, long-term observations have revealed that this is not the case. The system can display an extremely rich spatio- temporal behaviour that emerges as the patterns drift extremely slowly along the axis of rotation. Due to these low average pattern-drift velocities the complex system dynamics often only reveal themselves when conducting experiments extending over several weeks. Here we discuss some of the observed typical aspects of the long-term behaviour of the system for the first time.

[1] Boote, O.A.M. & Thomas, P.J. 1999 Effects of granular additives on transition boundaries between flow states of rimming flow, Phys. Fluids vol. 11, 2020-2029.

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