

Abstract Submitted
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Intermittency and ergodicity breaking in a system of interacting self-propelled particles¹ FRANCISCO J. SEVILLA, Instituto de Fisica, Universidad Nacional Autonoma de Mexico, VICTOR DOSSETTI, Instituto de Fisica, Benemerita Universidad Autonoma de Puebla — A comprehensive dynamical model for cooperative motion of self-propelled particles [Dossetti et al. Phys. Rev. E 79, 051115 (2009)], that combines velocity alignment interactions, spatial interactions, and angular noise, is studied. The noise considered in this model comes about non-linear with correlations that decay in time, leading to a unique collective behavior. In particular, for a certain arrangement of the parameters, the system develops intermittent behavior and some sort of ergodicity breaking. In this work, we characterize these phenomena by studying the distributions of time intervals between turbulent bursts and changes between metastable states, respectively.

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