Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Glassy dynamics of self-propelled particles ELIJAH FLENNER, Colorado State University, LUDOVIC BERTHIER, CNRS and Universite Montpellier, GRZEGORZ SZAMEL, Colorado State University — We examine the glassy dynamics of a system of self-propelled, interacting particles. The self-propulsion is described as an internal driving force that evolves according to the Ornstein-Ulenbeck process. It can be characterized by an effective temperature and a persistence time for the self-propelled motion. For a fixed effective temperature, as the persistence time approaches zero the particles dynamics becomes equivalent to overdamped Brownian (thermal) dynamics. Our goal is to investigate how the average structure and dynamics evolves with increasing persistence time, which corresponds to increasing departure from the Brownian limit. To this end we simulate a system whose glassy dynamics has been extensively studied in Brownian dynamics simulations, the Kob-Andersen binary mixture. We examine how the effective mode-coupling transition, the fragility and heterogeneous dynamics change with increasing persistence time.

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Date submitted: 05 Nov 2015 Electronic form version 1.4