Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Effect of CorrelatedRotational Noise BENJAMIN HANCOCK, CALEB WAGNER, APARNA BASKARAN, Brandeis University — The traditional model of a self-propelled particle (SPP) is one where the body axis along which the particle travels reorients itself through rotational diffusion. If the reorientation process was driven by colored noise, instead of the standard Gaussian white noise, the resulting statistical mechanics cannot be accessed through conventional methods. In this talk we present results comparing three methods of deriving the statistical mechanics of a SPP with a reorientation process driven by colored noise. We illustrate the differences/similarities in the resulting statistical mechanics by their ability to accurately capture the particles response to external aligning fields.

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Date submitted: 11 Nov 2016 Electronic form version 1.4