

Abstract Submitted  
for the MAR08 Meeting of  
The American Physical Society

**Simulated Flocking Dynamics of 2D Self-propelled Hard Particles** DONALD BLAIR, University of Massachusetts Amherst — Following a recent demonstration of long-lived giant number fluctuations in a swarming, granular nematic (Narayan et. al, Science **317**, 105 (2007)), we perform 2D simulations of hard, self-propelled particles which communicate only through contact. We vary particle end-shape, polarity, and aspect ratio and explore the effects on order, on the development of density fluctuations, and on the evolution of the swarm boundary. Connections to various forms of active matter (swimming bacteria, crawling cells) will be discussed.

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Date submitted: 27 Nov 2007

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