

Colloquium

Thursday, April 23rd, 2026 at 4 p.m.
Physics & Astronomy Building (PAB) 1-434

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The Wisdom of the Swarm: Physics and Behavior

Super-organisms such as social insects solve complex physiological problems collectively, sans plan or planner, on scales much larger than the individual. Motivated by observations in the field and in the lab, I will describe our attempts to understand how insects actively regulate their micro-environment in such contexts as termite mound morphogenesis, active ventilation and mechanical stabilization in bee clusters, and collective construction in ants. By linking physics and behavior on multiple scales using local sensing and action mediated by global physics, these examples point to a kind of embodied physical intelligence. To synthesize these complex collective behaviors, I will close by describing our experiments using simple robots that sharpen some questions raised a long time ago by Tinbergen, among others.

Hosted by Seth Putterman