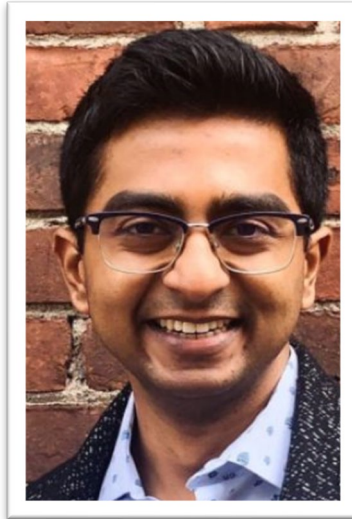


# PHYSICAL MATH SEMINAR

## Controlling active matter - from drops to defects



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### **ABSTRACT:**

We are active matter. From molecular motors noisily walking in living cells to the mesmerizing swirls in a starling flock, systems driven far from equilibrium by a sustained flux of energy through its constituents routinely exhibit stunning emergent phenomena that pose fundamental challenges to our understanding of the natural world. Much is known about what patterns and dynamics active systems can exhibit, but the inverse problem of controlling active matter is less explored. I will discuss our current work on searching for design principles to control localized excitations, drops etc., in active materials using ideas from control theory, optimal transport and symmetry-based approaches. I will conclude by highlighting future directions for embodying function, programmable response and computation in biological and synthetic active systems.

**TUESDAY, NOVEMBER 14, 2023**

**2:30 PM – 3:30 PM**

**Building 2, Room 449**

<https://math.mit.edu/pms/>