

PHYSICAL MATHEMATICS SEMINAR

Active muscle hydraulics

SURAJ SHANKAR

Harvard University

ABSTRACT:

What limits the rate of contraction in muscle? Molecular (actomyosin) kinetics is often assumed to be rate limiting, but muscle is a soft, wet and active tissue that is spatially and hierarchically organized across multiple scales. I will describe a minimal multiscale model that describes muscle as an active sponge and highlight the presence of active hydraulic oscillations that dictate the fastest rate of contraction along with the emergence of nonreciprocal mechanics. I will finally discuss the consequences of the model for physiology.

TUESDAY, FEBRUARY 15, 2022

2:30 PM – 3:30 PM

Building 2, Room 449

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

MIT Covid policies must be adhered to:

- remember to keep your mask on while inside buildings
- eating food is not allowed within lecture rooms