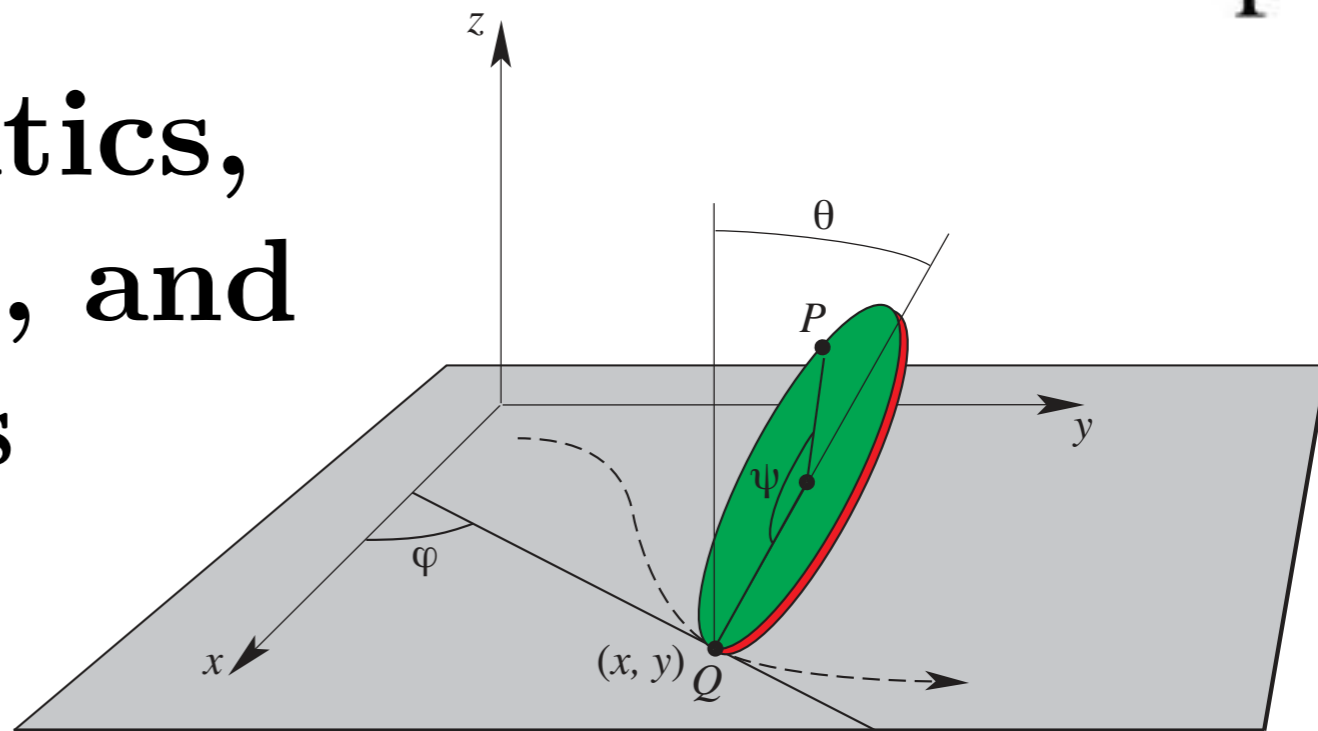# Michigan Math Club

Thursday at 4pm in the Nesbitt Room
Free Pizza and Pop

Mathematics, Dynamics, and Mechanics

Tony Bloch

Chair of the
Mathematics Department

13 February 2020

In this talk I will discuss the mathematics of (mainly) classical mechanical systems and their associated dynamical behavior. I will describe the role of the least action principle and its relationship to Newton's laws, and cases where the least action principle fails, such as for *nonholonomic systems* (systems with nonintegrable velocity constraints). I will describe the notion of conservation laws together with the associated Noether's theorem and how it generalizes in the nonholonomic setting. The talk will be illustrated by various examples.