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## *Cell Biology and Active Matter*



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### **ABSTRACT:**

Life is a nonequilibrium phenomenon. Metabolism provides a continuous flux of energy that dictates the form and function of many subcellular structures. These subcellular structures are active materials, composed of molecules which use chemical energy to perform mechanical work and locally violate detailed balance. Such active materials can behave drastically differently from more conventional materials. One of the most dramatic examples of such a self-organizing structure is the spindle, the cytoskeletal based assembly which segregates chromosomes during cell division. In this talk, I will describe how the cytoskeleton can be viewed as an active material and present ongoing work from my lab using this perspective to understand the spindle.

### **BIOGRAPHY:**

#### **Training:**

- Undergrad, Physics, Brandeis University, Waltham, MA 1994-1998
- PhD, Physics, University of California at Santa Barbara, Santa Barbara, CA 1999-2005
- Postdoc, Harvard Medical School, Boston, MA 2005-2008

#### **Employment:**

- Center for Computational Biology, Flatiron Institute, New York, NY 2020-present
- Applied Physics and Professor of Molecular and Cellular Biology, Harvard University, Cambridge, MA 2008-present