Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Biophysical Aspects of Spindle Evolution REZA FARHADIFAR, Harvard University, CHARLIE BAER, University of Florida, DANIEL NEEDLEMAN, Harvard University — The continual propagation of genetic material from one generation to the next is one of the most basic characteristics of all organisms. In eukaryotes, DNA is segregated into the two daughter cells by a highly dynamic, self-organizing structure called the mitotic spindle. Mitotic spindles can show remarkable variability between tissues and organisms, but there is currently little understanding of the biophysical and evolutionary basis of this diversity. We are studying how spontaneous mutations modify cell division during nematode development. By comparing the mutational variation - the raw material of evolution - with the variation present in nature, we are investigating how the mitotic spindle is shaped over the course of evolution. This combination of quantitative genetics and cellular biophysics gives insight into how the structure and dynamics of the spindle is formed through selection, drift, and biophysical constraints.

Reza Farhadifar
Harvard University

Date submitted: 18 Nov 2010 Electronic form version 1.4