

1125-92-3038

Caitlin S Hult* (chult@live.unc.edu), **Paula A Vasquez**, **David Adalsteinsson**, **Josh Lawrimore**, **M Gregory Forest** and **Kerry Bloom**. *Modeling nucleosomal DNA in living yeast.*

The genome in living yeast cells is a highly dynamic system where entropic interactions and nuclear confinement drive the formation of domains of high chromosomal interaction, known as topologically associating domains. We investigate dynamic organization and territory formation of all 16 chromosomes in living yeast cells during interphase, using coarse-grained, entropic polymer chain models. We are interested in determining the mechanisms, such as packaging molecules that create loops within chromatin fibers, governing inter- and intra-chromatin fluctuations, and inducing global features of the entire genome. The Bloom lab measures specific DNA sites in specific chromosomes using live cell fluorescence microscopy. Our goal is to identify the sufficient biological and biophysical assumptions necessary to reproduce the experimental data, from which we aim to shed insights into dynamics and structure that are beyond current experimental resolution. (Received September 20, 2016)