Abstract Submitted
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Dynamics of Chromatin Silencing at Telomeres: Deterministic and Stochastic Aspects MANJUL APRATIM, Dept. of Physics and Astronomy, Rutgers University, ADEL DAYARIAN, KITP, University of California, Santa Barbara, EDUARDO SONTAG, Dept. of Mathematics, Rutgers University, ANIRVAN SENGUPTA, BioMaPS Institute and Dept. of Physics and Astronomy, Rutgers University — Epigenetic silencing modifications of are often associated with well-defined domains. We study potential mechanisms of formation of boundary of silenced regions. We specially focus on the possibility that some telomeric silencing boundaries are formed in a self-organized manner, as opposed to being defined by specific boundary elements. In particular, we examine systems where a titration-induced feedback can stabilize the boundary of the silenced region. A consequence of having multiple such boundaries is large stochastic cell-to-cell variation of boundary locations. We proceed to make an argument about the nature of the fall-off of the average silencing protein occupancy, coming from such variability, and test the predictions against HA-Sir3 ChIP-seq data from experiments performed on yeast.

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