

Abstract Submitted
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Target Finding Mechanism of Microtubules in a Confined Geometry MITRA SHOJANIA FEIZABADI, Canisius College — Discovery of a non-equilibrium dynamic of microtubules, called dynamic instability, raised this question: is stochastic polymerization dynamic of microtubules an advantage in the process of finding a chromosome as a target? Previous studies showed that compared to usual reversible polymerization, dynamic instability of microtubules with decreasing length distribution reduced the time required to find a target by several order of magnitude [1]. Dynamic Equations for growing and shrinking microtubules in a confined geometry is theoretically modeled by Govinden and Spillman [2]. This work calculates the target finding time for microtubules with exponentially increasing length distribution in a confined geometry. The efficiency of target finding mechanism based upon different dynamical parameters is discussed. [1] Holy TE, Leibler S. 1994, Proc. Natl. Acad. Sci. USA 91, 5682. [2] Govindan B, Spillman W. 2004, Phys. Rev. E 70, 032901.

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