

Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

Noise in Exponential Growth SRIVIDYA IYER-BISWAS, James Franck Institute, UChicago, CHARLES WRIGHT, JON HENRY, STAS BUROV, Univ of Chicago, YIHAN LIN, Caltech, SEAN CROSSON, Univ of Chicago, AARON DINNER, NORBERT SCHERER, James Franck Institute, UChicago — The interplay between growth and division of cells is has been studied in the context of exponential growth of bacterial cells (in suitable conditions) for decades. However, bulk culture studies obscure phenomena that manifest in single cells over many generations. We introduce a unique technology combining microfluidics, single-cell imaging, and quantitative analysis. This enables us to track the growth of single *Caulobacter crescentus* stalked cells over hundreds of generations. The statistics that we extract indicate a size thresholding mechanism for cell division and a non-trivial scaling collapse of division time distributions at different temperatures. In this talk I shall discuss these observations and a stochastic model of growth and division that captures all our observations with no free parameters.

Srividya Iyer-Biswas
James Franck Institute, UChicago

Date submitted: 09 Nov 2012

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