

Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Inferring biological dynamics in heterogeneous cellular environments STEVE PRESS, IUPUI — In complex environments, it often appears that biomolecules such as proteins do not diffuse normally. That is, their mean square displacement does not scale linearly with time. This anomalous diffusion happens for multiple reasons: proteins can bind to structures and other proteins; fluorophores used to label proteins may flicker or blink making it appear that the labeled protein is diffusing anomalously; and proteins can diffuse in differently crowded environments. Here we describe methods for learning about such processes from imaging data collected inside the heterogeneous environment of the living cell. Refs.: "Inferring Diffusional Dynamics from FCS in Heterogeneous Nuclear Environments" Konstantinos Tsekouras, Amanda Siegel, Richard N. Day, Steve Press*, *Biophys. J.* , 109, 7 (2015). "A data-driven alternative to the fractional Fokker-Planck equation" Steve Press*, *J. Stat. Phys.: Th. and Expmt.* , P07009 (2015).

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Date submitted: 03 Nov 2015

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