

Abstract Submitted  
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**Modeling of Protein Subcellular Localization in Bacteria** XIAO-HUA XU, RAHUL KULKARNI — Specific subcellular localization of proteins is a vital component of important bacterial processes: e.g. the Min proteins which regulate cell division in *E. coli* and Spo0J-Soj system which is critical for sporulation in *B. subtilis*. We examine how the processes of diffusion and membrane attachment contribute to protein subcellular localization for the above systems. We use previous experimental results to suggest minimal models for these processes. For the minimal models, we derive analytic expressions which provide insight into the processes that determine protein subcellular localization. Finally, we present the results of numerical simulations for the systems studied and make connections to the observed experimental phenomenology.

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