Effects of Cell Growth on Min-Protein Oscillation in *E. coli* JASON ELLIS, Kent State University, MICHAEL LEE, Kent State University (Emeritus) — A coarse-grained model for cell growth via elongation is implemented to study the effects of dynamic cell geometry on the spatio-temporal oscillations of the Min system of proteins in *Escherichia coli*. Using a well studied reaction-diffusion model for the oscillations, numerical solutions of a system of coupled non-linear PDEs are solved with dynamic boundary conditions. The model for elongation correctly captures the behavior of wild-type cells and predicts the emergence of multi-node oscillations in filamentous mutants. Comparisons are made with results of fixed-length calculations for long filamentous cells.

Jason Ellis
Kent State University

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