

Abstract Submitted
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Modeling the Arrest of Tissue Growth in Epithelia¹ ALEXANDER GOLDEN, DAVID LUBENSKY, University of Michigan, Ann Arbor — The mechanisms of control and eventual arrest of growth of tissues is an area that has received considerable attention, both experimentally and in the development of quantitative models. In particular, the *Drosophila* wing disc epithelium appears to robustly arrive at a unique final size. One mechanism that has the potential to play a role in the eventual cessation of growth is mechanical feedback from stresses induced by nonuniform growth. There is experimental support for an effect on the tissue growth rate by such mechanical stresses, and a number of numerical or cell-based models have been proposed that show that the arrest of growth can be achieved by mechanical feedback. We introduce an analytic framework that allows us to understand different coarse-grained feedback mechanisms on the same terms. We use the framework to distinguish between families of models that do not have a unique final size and those that do and give rough estimates for how much variability in the eventual organ size can be expected in models that do not have a unique final size.

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