

Abstract Submitted  
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**Growth variability in a tissue governed by stress dependent growth** KAREN ALIM, Harvard, AREZKI BOUDAUD, INRA, CNRS, ENS, Université de Lyon — Cell wall mechanics lie at the heart of plant cell growth and tissue morphogenesis. Conversely, mechanical forces generated at tissue level can feedback on cellular dynamics. Differential growth of neighboring cells is one eminent origin of mechanical forces and stresses in tissues where cells adhere to each other. How can stresses arising from differential growth orchestrate large scale tissue growth? We show that cell growth coupled to the cell's main stress can reduce or increase tissue growth variability. Employing a cell-based two dimensional tissue model we investigate the dynamics of a tissue with stress depending growth dynamics. We find that the exact cell division rule strongly affects not only the tissue geometry and topology but also its growth dynamics. Our results should enable to infer underlying growth dynamics from live tissue statistics.

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