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Inference of Mechanical Network Parameters in Epithelial Tissue Development KEVIN CHIOU, Department of Physics, UCSB, LARS HUFNAGEL, EMBL Heidelberg, BORIS SHRAIMAN, KITP, UCSB — Mechanical stress in cells has been linked to biochemical networks that influence cell structure and function. Yet direct *in vivo* measurements of mechanical forces in epithelial tissues remain a serious experimental challenge. I will present an alternative approach based on a computational analysis of high resolution images of epithelial tissues. Assuming that epithelial cell layers are close to mechanical equilibrium, we use the observed geometry of the two dimensional cell array to infer interfacial tensions and intracellular pressures. I will present applications of this mechanical parameter inference algorithm in the context of several developmental processes involving epithelial cell layers.

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