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Self-organized cytoskeletal dynamics during fruit fly epithelial morphogenesis

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Epithelial morphogenesis plays a major role in embryonic development. During this process cells within epithelial sheets undergo complex spatial reorganization to form organs with specific shapes and functions. The dynamics of epithelial cell reorganization is driven by forces generated through the cytoskeleton, an active network of protein filaments and motor proteins. In this talk, I will present a novel mesoscopic-scale physical description of force generation by the cytoskeleton, and show that this minimal description can account for a wide range of phenomena associated with fruit fly epithelial morphogenesis.