

Abstract Submitted
for the 4CF13 Meeting of
The American Physical Society

Analysis of interface node dynamics in *Drosophila* during germ-band extension TIMOTHY VANDERLEEST, ASHLEY MOTLONG, MARISSA KUHL, TODD BLANKENSHIP, DINAH LOERKE, University of Denver — Tissue elongation is a fundamental morphogenetic process crucial to embryogenesis and organogenesis in vertebrates and invertebrates. One widely studied example of tissue elongation is *Drosophila* germ-band extension (GBE) in which an initially hexagonal array of cells approximately doubles in length along the anterior-posterior (AP) axis. This process is driven by cell intercalation where interfaces between cells along the AP axis fully contract to a common vertex and interfaces form between dorsal-ventral neighboring cells. The current model holds that intercalation is caused by anisotropic tension mediated by actomyosin contractility. Using automated computational image segmentation we have tracked the motion of cells during GBE with high spatial and temporal resolution, which includes the tracking of interfaces and interface vertices. Through cross correlation analysis on the motion of vertices of contracting AP interfaces we have found that vertex behavior is not correlated and, in fact, display independent displacements. These results are inconsistent with a tension-based model in which supracellular actomyosin networks drive coordinated node behaviors.

Timothy Vanderleest
University of Denver

Date submitted: 20 Sep 2013

Electronic form version 1.4