

Abstract Submitted  
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**Stress field mapping in the amnioserosa of *Drosophila* embryos using laser microsurgery** SARAH M. CREWS, W. TYLER MCCLEERY, M. SHANE HUTSON, Vanderbilt University — Embryonic development in *Drosophila* is a complex process involving coordinated movements of mechanically interacting tissues. Perturbing this system with a transient heat shock can result in a number of developmental defects. In particular, a heat shock applied at gastrulation can lead to apparent recovery, but then subsequent failure 5-6 hours later during germ band retraction. The amnioserosa, a single layered epithelial tissue, is known to be mechanically essential for the completion of germ band retraction. Heat shock at gastrulation can induce the later opening of holes in the amnioserosa, which can lead to a failure in germ band retraction. These holes could be caused by a combination of weakness in the amnioserosa or increased mechanical stress at the site where holes open. Here, we use laser hole drilling to map the stress field of the amnioserosa around the times of hole openings to inform the cause of this mechanical failure.

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