

The University of Chicago  
Department of Statistics  
MASTER'S THESIS PRESENTATION

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**Control of Variance in *Drosophila* Transcription**

**THURSDAY, September 1, 2011, at 10:00 AM**  
110 Eckhart Hall, 5734 S. University Avenue

**ABSTRACT**

Transcriptional regulation in eukaryotes is not well understood because of the complex nature of the system, which involves the interaction of many different players. An enhancer is a fragment of DNA that drives expression of a reporter, where the reporter is biologically inert but chemically detectable. Although past studies elucidated control of mean expression levels by enhancers, almost nothing is known about the control of variance in expression levels. In this study, we look at relative variation in quantitative gene expression levels for two well known enhancers, the *eve* minimal stripe 2 element (MSE2) and the *eve* minimal stripe 3 element (MSE3), placed in a fly chromosome in a variety of rearranged positions. Specifically, we test for the equality of relative variation in gene expression for each possible pair of constructs using Levene's median ratio test of variation and identify significant pairs. The results of the tests are discussed in connection with two very recently published studies on enhancers' roles in the control of robust gene expression.