

# A U S H A N G

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## FREIE UNIVERSITÄT BERLIN Fachbereich Mathematik und Informatik

Promotionsbüro, Arnimallee 14, 14195 Berlin

# DISPUTATION

**Mittwoch, 25. Oktober 2017, 10.15 Uhr**

**Ort: Arnimallee 6, SR 108/109, 14195 Berlin**

**Disputation über die Doktorarbeit von**

**Frau Ling Sun**

**Thema der Dissertation:**

**Relating the structure and dynamics of gene regulatory networks**

**Thema der Disputation:**

**Logical modelling and Drosophila embryo development**

Die Arbeit wurde unter der Betreuung von **Prof. Dr. A. Bockmayr** durchgeführt.

Abstract: During the last years, logical modelling has become a widely used approach for studying regulatory and signalling networks in computational systems biology. The logical modelling framework includes an interaction graph with logical parameters characterising the interactions, and a state transition graph representing the dynamics. The most important dynamic properties depend on the attractors which describe the long-term asymptotic behaviours of the system. After recalling the basics of the logical modelling framework, the focus of the talk will be on its application to studying the embryo development of the fruit fly *Drosophila melanogaster*. Considering the early stages of embryo segmentation, the patterning of the wing imaginal discs, or mesoderm specification, we illustrate the versatility of the logical formalism and the different model analysis methods.

Die Disputation besteht aus dem o. g. Vortrag, danach der Vorstellung der Dissertation einschließlich jeweils anschließenden Aussprachen.

**Interessierte werden hiermit herzlich eingeladen**

Der Vorsitzende der Promotionskommission  
Prof. Dr. A. Bockmayr