

A U S H A N G

FREIE UNIVERSITÄT BERLIN

Fachbereich Mathematik und Informatik

Promotionsbüro, Arnimallee 14, 14195 Berlin

DISPUTATION

Mittwoch, 29. April 2015, 10.00 Uhr

Ort: Raum 046, Takustr. 9, 14195 Berlin

Disputation über die Doktorarbeit von

Frau Franziska Zickmann

Thema der Dissertation:

**Computational methods and graphical models
for integrative proteogenomics**

Thema der Disputation:

Graph-based strategies for reference-guided transcriptome assembly

Die Arbeit wurde unter der Betreuung von **PD Dr. B. Renard** durchgeführt.

Abstract: Reconstructing the transcriptome is one of the fundamental steps in RNASeq based genome analysis, as it provides the basis for subsequent analyses, such as abundance estimation and differential gene expression. The sequences and locations of up to thousands of transcripts need to be assembled, mainly based on short sequence fragments (reads) generated by high-throughput next-generation sequencing.

One strategy for the assembly is based on analyzing read mappings to reference genomes, which is challenging, for instance, due to possible alternative isoforms and different coverage levels of transcripts. Here, we introduce the splice graph as a popular concept to represent RNA-Seq read mappings. Further, different methods for processing splice graphs are presented and compared, with special focus on maximum matching and maximum-flow.

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
PD Dr. B. Renard