

# A U S H A N G

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## FREIE UNIVERSITÄT BERLIN

Fachbereich Mathematik und Informatik

Promotionsbüro, Arnimallee 14, 14195 Berlin

## D I S P U T A T I O N

**Montag, 1. Oktober 2018, 10:00**

**Ort: Seminarraum 005  
(Takustr. 9, 14195 Berlin)**

**Disputation über die Doktorarbeit von**

**Frau Kathrin Trappe**

**Thema der Dissertation:**

**Computational Methods for Integrative Structural Variant Analysis  
Across Species Boundaries**

**Thema der Disputation:**

**Efficient read assignment for high resolution metagenomic  
classification**

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

**Abstract:** Metagenomics studies environmental or human samples that consist of a complex ensemble of diverse organisms and communities. Next-generation sequencing (NGS) with its high throughput at comparatively low costs brought means to analyse the composition of metagenomics samples in a comprehensive and efficient manner. The aim of bioinformatics metagenomic classification tools is then to identify all organisms in the sample from the NGS read data, i.e. to assign sequenced reads to references in a taxonomic tree. Due to the large amount of sequencing data, sequence assignment should be quick but accurate in the sense that follow-up identification should be on low taxonomic levels, i.e. species or strain level. This is important as especially bacteria differ largely in their properties on strain level when traits such as pathogenicity or antimicrobial resistances are considered.

The disputation talk will cover challenges of metagenomic classification from NGS data with a focus on the algorithmic ideas behind the tool Kallisto (Bray et al. 2016, Schaeffer et al. 2017) to overcome some of these challenges, and further discuss their advantages but also limitations for specialized applications in the context of metagenomics.

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