

A U S H A N G

FREIE UNIVERSITÄT BERLIN Fachbereich Mathematik und Informatik

Promotionsbüro, Arnimallee 14, 14195 Berlin

DISPUTATION

Freitag, 29. November 2013, 9.00 Uhr

Ort: Takustraße 9, 14195 Berlin, Raum 053

Disputation über die Doktorarbeit von

Frau Alexandra Zerck

Thema der Dissertation:

Optimal precursor ion selection for LC-MS/MS based proteomics

Thema der Disputation:

Protein Inference in Tandem Mass Spectrometry Data

Die Arbeit wurde unter der Betreuung von **Prof. Dr. K. Reinert** durchgeführt.

Abstract: Liquid chromatography coupled to tandem mass spectrometry (LC-MS/MS) is a powerful technique for analyzing complex proteomic samples. Protein identification is a major challenge in the analysis of LC-MS/MS data. It is done in a two-step procedure where first experimental tandem mass spectra are assigned to peptides and afterwards these peptides are mapped onto proteins. In the last step, ambiguities often occur due to peptides that can be mapped to more than one protein. These shared peptides are common in eukaryotic samples and present a challenge for protein inference tools.

In this talk I will give an overview of different algorithmic approaches to the protein inference problem. These range from simple counting approaches to combinatorial optimization problems and probabilistic inference methods. I will present ProteinProphet, the first and most widely used probabilistic inference tool, and compare it with more recently developed tools, discuss their limitations and briefly evaluate their performance.

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. K. Reinert