INSTITUT FÜR MATHEMATIK

M. Birkner / L. Hartung / A. Klenke

Oberseminar Stochastik

Am **Dienstag, 21. Januar 2025**, wird

Frau **Mareike Fischer (Universität Greifswald)**

einen Vortrag halten mit dem Titel:

"On the reliability of Maximum Parsimony for encoding and reconstructing phylogenetic trees"

Abstract:

Phylogenetic trees play a major role in the reconstruction and representation of evolutionary relationships among different species. Maximum parsimony (MP) is one of the oldest and simplest phylogenetic tree reconstruction criteria. While it is not based on a nucleotide substitution model but works in a purely combinatorial fashion, it is "folklore knowledge" amongst biologists that it works well whenever the number of substitutions is relatively small. Proving this assertion, which in some regard can be viewed as an extension of the famous Buneman theorem in mathematical phylogenetics, is mathematically quite intriguing. In my talk, I will provide some first steps in this regard, and I will make use of some beautiful combinatorial properties of MP. The results presented in my talk can be regarded as an important step towards proving that MP is justified whenever the number of substitutions is sufficiently small. I will also highlight how these findings on MP impact Maximum Likelihood, another famous tree reconstruction criterion. I will conclude my talk by pointing out some areas of ongoing and future research.

Zeit: Dienstag, 21. Januar 2025, 14 Uhr c.t.

Ort: Raum 05-136, Institut für Mathematik, Staudingerweg 9, 55128 Mainz

Alle Interessierten sind herzlich eingeladen!

gez. Matthias Birkner