Otto-von-Guericke-Universität Magdeburg
Fakultät für Mathematik

Auf Einladung des Institutes für Algebra und Geometrie spricht

Frau Aida Maraj

(Max-Planck-Institut Leipzig)

über das Thema

(Reciprocal) Maximum Likelihood Degree of some Phylogenetic Models

Zoom-Koordinaten: https://ovgu.zoom.us/j/95199662620
Meeting ID: 951 9966 2620 / Passcode: 461614

Zeit: Dienstag, 19. Januar 2021, 14.00 Uhr

Zu diesem Vortrag laden wir alle Interessierten herzlich ein.

Prof. Dr. Thomas Kahle

Abstract: Brownian Motion Tree Models (BMTM) are multivariate Gaussian models that arise in phylogenetics when studying the evolution of species through time. They are realized by rooted directed trees. Additionally, associated to such a tree there is a discrete phylogenetic model. BMTM are wonderful as the space of their covariance matrices is a linear space of symmetric matrices, and the space of their concentration matrices is the toric variety for this discrete phylogenetic model. In applications, one is interested in computing the point in a model that is more probable for the observed data. The (reciprocal) Maximum Likelihood degree of the model gives an insight on the complexity of this problem. In both our models, the (reciprocal) ML-degree can be nicely computed from the structure of the tree. To prove this result we require help from toric geometry. This is based on joint work with T. Boege, J.I. Coons, C. Eur, and F. Röttger.