

Otto-von-Guericke-Universität Magdeburg
Fakultät für Mathematik

Auf Einladung des Institutes für Algebra und Geometrie spricht

Dr. Alex Black
(UC Davies, CA, USA)

über das Thema

Smooth Torus Orbit Closures in Flag Varieties

Der Vortrag findet dual statt.

per Zoom Meeting ID 971 4945 5855, passcode 490213 oder G02-210

Zeit: Dienstag, 13. Dezember 2022, 13.00 Uhr

Zu diesem Vortrag laden wir alle Interessierten herzlich ein.

Prof. Dr. Thomas Kahle

Abstract: Matroids are central objects in combinatorial algebraic geometry due in part to a fundamental relationship between them and the Grassmannian. For example, torus orbit closures in the Grassmannian for a natural torus action correspond exactly to matroid base polytopes. These toric varieties are almost never smooth. One may extend this action further to flag varieties and the resulting toric varieties correspond to flag matroids. For any rank r matroid M , there is a canonical flag matroid by taking the sequence of each matroid M_k given by all independent set of size at most k in M . We call such a flag matroid full, and the key result I will present is that toric varieties for full flag matroids are always smooth. I will furthermore present a complete combinatorial description of their moment polytopes using a connection to toric quotients, nestohedra, and a recent construction introduced by me, De Loera, Lütjeharms, and Sanyal called the pivot rule polytope. Based on joint work with Raman Sanyal.