



universität
wien

Fakultät für Mathematik

Mathematisches Kolloquium

Mittwoch, 29. Oktober 2025

Sky Lounge

EINLADUNG

Prof. David Gay

(Universitat de Georgia)

**„Loops of 2-dimensional spheres and diffeomorphisms
of dimensional spheres”**

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Abstract:

This is a talk about smooth 4-dimensional manifolds (spaces that look locally like $\mathbb{R}^4$ and on which one can do calculus) and their automorphisms, namely diffeomorphisms (infinitely differentiable maps with infinitely differentiable inverses). The simplest such manifold is the 4-dimensional sphere S^4 inside $\mathbb{R}^5$. It is relatively easy to show that every orientation preserving diffeomorphism of S^4 is connected by a path of homeomorphisms (continuous with continuous inverse) to the identity, but this proof completely fails in the smooth context. We will discuss this, some of the broader background, and show how to approach the problem by making a surprising connection to loops of smooth embeddings of 2-dimensional spheres into certain other smooth 4-dimensional manifolds. This is based on joint work with David Gabai and Daniel Hartman.

14.45 Uhr: Kaffeejause

15.15 Uhr: Vortrag

vinum cum pane im Anschluss

Vera Vertesi
Radu Bot