

14.06.2023

## **E i n l a d u n g**

zu der am **Mittwoch, den 21. Juni 2023,**  
um **10:15 Uhr** im **Hörsaal M4** stattfindenden

## **A n t r i t t s v o r l e s u n g**

von **Frau Professorin Dr. Ursula Ludwig**

über das Thema

**„On the Witten deformation“**

### **Kurzfassung:**

In his seminal paper “Supersymmetry and Morse theory” (Journal Diff. Geom. 1982) Witten, inspired by ideas from quantum field theory, gave a new analytic proof of the famous Morse inequalities. The Witten deformation has many classical applications, e.g. to the study of comparison theorems in global analysis, or - in its holomorphic version - to vanishing theorems in algebraic geometry. More recent developments are related to the study of the hypoelliptic Laplacian as well as to persistent homology. In my own research I have studied different generalisations of the Witten deformation to singular spaces.

In the first part of this talk, I will give a gentle introduction to the Witten deformation on a smooth compact manifold. In the second part, I present some aspects of its generalisation to singular spaces which appear in my work.

gez. Arthur Bartels, Dekan