

## EINLADUNG

zum

## HABILITATIONSVORTRAG

**Shantanu Dave, PhD**

(Fakultät für Mathematik, Universität Wien)

**“Noncommutative tangent spaces and hypoellipticity”**

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Abstract:

*The tangent space to a point on a manifold is a group that is isomorphic to  $\mathbb{R}^n$ . This group structure on the tangent space is crucial for analyzing elliptic operators. By adding some weights to this group we can also treat the heat equation in a similar fashion. Interestingly there are many natural geometric structures where the tangent spaces can be viewed as noncommutative groups. One of the questions in this habilitation thesis has been how to utilize this group structure to solve problems in the analysis of certain classes of differential operators. Our results are based on a new geometric deformation technique that unifies the analysis in all the above situations. This technique is simple and leads to new insight even for standard elliptic operators, but also can be applied to more exotic operators such as the BGG operators in parabolic geometry. One of our main motivations for considering BGG operators is that their analysis is important for a problem in operator theory called the Baum-Conne conjecture.*

**Mittwoch, 13. November 2019**

**14:00 Uhr – 14:45 Uhr**

**Fakultät für Mathematik  
Oskar-Morgenstern-Platz 1  
SR 05, 1 OG**

Bernhard Lamel