Fakultät Mathematik
Institut für Analysis

Dresden, 9. April 2024

Im

Oberseminar Analysis

hält

Dr. **Wen-Chi Kuo**

University of the Witwatersrand Johannesburg,
School of Mathematics

einen Vortrag zum Thema

Conditional expectation preserving systems and ergodicity in Riesz spaces

Abstract:
Mathematics is the foundation of many fields such as computer science, engineering, financial modelling, statistics and physics. For example, probability theory is the base study of statistics. One needs to study the mathematics behind it in order to apply it optimally for statistical modelling. Our research focuses on taking the probability theory across from the space of integrable functions (with respect to a probability measure) to a vector space with compatible partial ordering (a Riesz space). We have also looked at the ergodic theorems and ergodicity from physics in Riesz spaces.

The probabilistic framework for studying ergodic processes is a probability space equipped with a measure preserving transformation. In the early 2000's, the concepts of conditional expectations and martingale processes were generalized to the measure-free setting of Riesz spaces. Working with these concepts, in the late 2000's, the Hopf, Birkhoff and Wiener ergodic theorems were extended to Riesz spaces. It was only in 2021 that an explicitly definition for conditional ergodicity was given for Riesz space processes. Underlying the above is the concept of a discrete semigroup of Riesz homomorphisms. The concepts introduced above form the focus of this presentation.

Datum: **Donnerstag, 2. Mai 2024**
Zeit: **16:40 Uhr**
Raum: **WIL C 129**

Kontakt: PD Dr. Anke Kalauch

Alle Interessent:innen sind herzlich eingeladen.