

Ergodic Theory in the Perspective of Relative Functional Analysis

Henrik Kreidler (U Leipzig)

Abstract:

Ergodic theory studies the behavior of measure-preserving transformations on probability spaces. Originally motivated by problems in thermodynamics and statistical mechanics, the field underwent a major development with Hillel Furstenberg's groundbreaking work establishing a deep and fruitful connection to combinatorial number theory. Using a powerful correspondence principle, Furstenberg gave an ergodic-theoretic proof of Szemerédi's celebrated theorem on the existence of arithmetic progressions in "large" subsets of the natural numbers.

In this talk, we will discuss how to approach the underlying structure theory from a functional-analytic perspective. This is based on joint work with Nikolai Edeko, Markus Haase, and Asgar Jamneshan.