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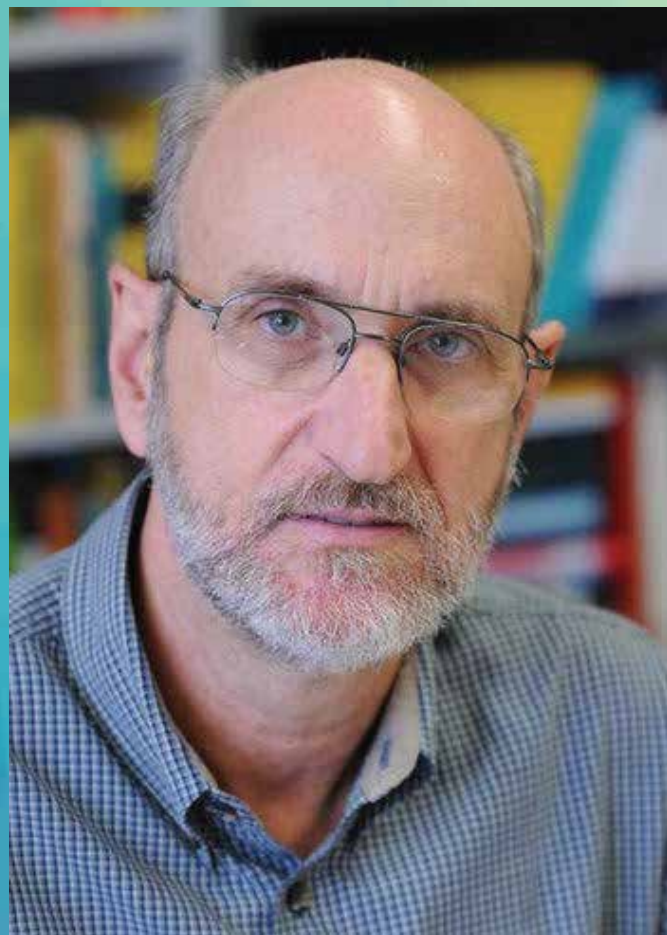
Brin MRC Distinguished Lecture

Orbit Equivalence Relations and the Compact Action Realization Problem

Alexander Kechris, California Institute of Technology

Date: August 28, 2024
Time: 3:15 PM
Location: 3206 Kirwan Hall

Abstract

The study of orbit equivalence relations induced by Borel actions of countable groups on Polish (separable completely metrizable) spaces, and their orbit spaces, has been a very active area of research for several decades in various fields of mathematics, including ergodic theory, operator algebras, geometric group theory, combinatorics, probability and descriptive set theory. Many results in this area have been obtained using ergodic (measure theoretic) methods.

After giving a basic introduction to this theory, I will focus on a new direction of topological nature that deals with the problem of realizing orbit equivalence relations by continuous actions on compact metrizable spaces and in particular subshifts. This also leads to considering a natural universal space for such actions and equivalence relations via subshifts and originates the study in this space of various important classes, especially the so-called hyperfinite ones, which are those induced by actions of the group of integers. This is joint work with Josh Frisch, Forte Shinko and Zoltan Vidnyánszky.

About the Speaker

Alexander Kechris is Professor of Mathematics at Caltech. He received his PhD degree at UCLA in 1972, was a C.L.E. Moore Instructor at MIT from 1972 to 1974 and has been in the Caltech faculty since 1974. His main research interests are in mathematical logic and its interactions with other areas of mathematics, including classical and harmonic analysis, ergodic theory, topological dynamics and combinatorics. He was awarded a Sloan Fellowship, a Guggenheim Fellowship, and was elected an inaugural Fellow of the American Mathematical Society. He was an invited speaker at the ICM and delivered the Gödel Lecture of the Association for Symbolic Logic and the Tarski Lectures at UC Berkeley. He received the Carol Karp Prize from the Association for Symbolic Logic and served as President of this Association.

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