The Weizmann Institute of Science
Faculty of Mathematics and Computer Science

Special Guest Seminar

Room 1, Ziskind Building
on Sunday, Jun 30, 2024
at 14:00

A Pre-SAAC

will speak on

A Pre-SAAC Symposium on Mathematics

Abstract:

Alex Furman (University of Illinois)

Title: Picking out arithmetic rank-one locally symmetric manifolds among negatively curved ones

Abstract: The definition of an arithmetic locally symmetric manifold uses the language of algebraic groups and number theory. It turns out that in the world of negatively curved manifolds the arithmetic locally symmetric ones can be detected using abstract commensurators and coarse-geometry. Based on a joint work with Yanlong Hao.

Balint Virag (University of Toronto)

Title: Random plane geometry: a gentle introduction

Abstract: Assign a random length of 1 or 2 to each edge of the square grid based on independent fair coin tosses. The resulting random geometry, first passage percloation, is conjectured to have a scaling limit. Most random plane geometric models (including hidden geometries) should have the same scaling limit. I will explain the basics of the limiting geometry, the "directed landscape", the central object in the class of models named after
Kardar, Parisi and Zhang.

Emmanuel Breuillard (University of Oxford)

Title: Undecidable problems in linear groups.

Abstract: The Skolem problem asks to determine whether or not a linear recurrence sequence over the integers has a zero. No algorithm is known to answer this simple question. In this talk I will discuss recent joint work with G. Kocharyan, where we consider a wider class of problems, dealing with finitely generated subgroups of matrices, and show their undecidability.

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Omer Angel (University of British Columbia)

Title: Interacting Polya urns.

Abstract: The classical Polya urn has counters X_t,Y_t that are incremented with probability proportional to their current value. I will discuss some of the many generalizations possible when multiple
Polya urns are coupled.

Shmuel Weinberger (University of Chicago)

Title: How existential is topology?

Abstract: Topology proves many things exist; but how well do we know them? I will explain a few situations where we can measure the complexity of topological objects, and show some contrasting
phenomena.