universität wien
Fakultät für Mathematik

EINLADUNG

zum

HABILITATIONSVORTRAG

Christopher Cashen, PhD
(Fakultät für Mathematik, Universität Wien)

“Variations on the Morse property and applications to the study of infinite discrete groups.”

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Abstract:
In the mid 1980's the study of infinite discrete groups was revolutionized by the introduction of geometric techniques. The geometry a group is only well-defined up to a notion of equivalence that allows linear distortion of the metric, so it is important to understand its so-called `coarse geometry' --- those geometric features that are preserved by such equivalences. One such feature is known as hyperbolicity. The class of hyperbolic groups has many nice properties. For instance, given two hyperbolic groups it is algorithmically possible to decide if they are isomorphic, and given a hyperbolic group it is algorithmically possible to decide if an arbitrary word expressed as a product of generators and their inverses represents the trivial element of the group. Both of these problems are known to be undecidable among arbitrary finitely presented groups, so the coarse geometry of the group can have strong algebraic consequences.

The main ingredient of the proof that hyperbolicity is a coarse geometric property is the Morse property. We will give some equivalent formulations of the Morse property and show how they are adapted to solving different problems. We think of geodesics with the Morse property as being hyperbolic-like, and we will discuss the extent to which we can recover results from the hyperbolic world for groups in which only some of the geodesics have this hyperbolic-like behavior.

Donnerstag, 5. März 2020
10:00 Uhr – 10:45 Uhr

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