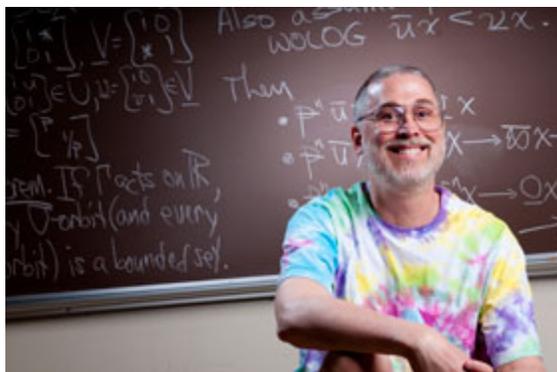


MATHEMATICS COLLOQUIUM

Friday, November 15th @ 4:00 pm

PS 307

What is a Superrigid Subgroup?



By

Dave Witte Morris

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In combinatorial geometry (and engineering), it is important to know that certain scaffold-like geometric structures are rigid. (They will not collapse, and, in fact, have enough bracing that they cannot be deformed at all.) Replacing the geometric structure with an algebraic structure (a group) leads to the following question: Given a homomorphism that is defined on the elements of a subgroup, it is possible to extrapolate the homomorphism to the rest of the elements of the group? It is fairly obvious that every additive homomorphism from the group \mathbb{Z} of integers to the real line \mathbb{R} can be extended to a homomorphism that is defined on all of \mathbb{R} , and we will see some other examples.

A world-class mathematician, Dave Witte Morris is the Canadian authority on two complex areas of mathematics. Dr. Morris works in lie groups and graph theory, two important and difficult areas of mathematics, have had profound impacts in mathematics. Of particular note are Dr. Morris's new, greatly simplified proofs of Ratner's Theory and his work related to the Superrigidity Theorem. Overall, Dr. Morris's work has about 200 citations in Math Sci Net, an impressive achievement, and several of his results have been described by his colleagues as "profound contributions."

Dr. Morris has written about 70 research articles and three books. His articles have appeared in elite journals like the American Journal of Mathematics, International Mathematics Research Notices, and Inventiones Mathematicae. His book Ratner's Theorems on Unipotent Flows was published as part of the prestigious Chicago Lectures in Mathematics Series, and this widely-cited reference work will likely become a classic of its type. Another of his books, Introduction to Arithmetic Groups, has become the standard text in the field.

For Colloquium attendees, refreshments will be served in PS 317 at 3:30 pm