Midwest Dynamical Systems Conference Fall 2026 University of Wisconsin–Madison

Dates and Location October 16-18, 2026 University of Wisconsin–Madison, Van Vleck Hall.

Invited Speakers

- Fernando Al Assal (University of Wisconsin–Madison)
- Harry Bray (George Mason)
- Michelle Chu (University of Minnesota – Twin Cities)
- Alex Furman (University of Illinois at Chicago)
- Dongryul Kim (Institute for Advanced Study)
- Jean Pierre Mutanguha (McGill University)
- Megan Roda (Institute for Advanced Study)
- Liz Vivas (The Ohio State University)

Schedule

Friday, October 16

Time	Event	Location
3-4pm	Registration & Coffee	Van Vleck 911
4-5pm	Colloquium by Alex Furman	Van Vleck B239

Saturday, October 17

Time	Event	Location
9-10am	Dongryul Kim	Van Vleck B239
10-10:30am	Coffee/posters	Van Vleck 911
10:30-11:30am	Megan Roda	Van Vleck B239
11:30am-1:30pm	Lunch Break	
1:30-2:30pm	Harry Bray	Van Vleck B239
2:30-3:30pm	Coffee/ posters	Van Vleck 911
3:45-4:45pm	Jean Pierre Mutanguha	Van Vleck B239

Sunday, October 18

Time	Event	Location
9-10am	Liz Vivas	Van Vleck B239
10-10:30	Coffee/ Poster	Van Vleck 911
10:30-11:30	Fernando Al Assal	Van Vleck B239
11:45-12:45	Michelle Chu	Van Vleck B239

Titles/Abstracts

Speaker: Alex Furman

Title: Ergodic Geometry and Super-rigidity

Abstract: Ergodic Geometry is a recently invented term, roughly meaning the study of geometric objects through the ergodic theory of naturally associated dynamical systems. The groundbreaking works of G. A. Margulis in the 1970s on Superrigidity and the Normal Subgroup Theorem are striking examples of results in group theory and geometry that rely on ergodic-theoretic considerations in an essential way. They belong to the Hall of Fame of Ergodic Geometry.

In this talk, I would like to discuss several results on the geometry of locally symmetric manifolds (of rank one) and quotients of Euclidean buildings (of rank two), which provide beautiful examples of Ergodic Geometry. These results can be viewed as modern reincarnations of Margulis' work.

I plan to keep the talk suitable for a broad mathematical audience and to provide a bird's-eye view of some of these topics with an emphasis on the role of dynamics.

The talk is based on works of Bader–Furman ('14, '20), Bader–Caprace–Lécureux ('19), Bader–Fisher–Miller–Stover ('21, '23), Bader–Furman–Lécureux ('26), and Lécureux–Witzel ('26+).

Speaker: Dongryul Kim

Title: Classification of infinite measures and applications

Abstract: Classifying invariant measures is one of the central themes in dynamical systems. In this talk, we discuss recent classification results, especially about infinite measures in various settings. Mainly, we focus on their applications. This is based on joint work with Inhyeok Choi.

Speaker: Megan Roda

Title: Classifying hyperbolic ergodic stationary measures on K3 surfaces with large automorphism groups

Abstract: Let X be a K3 surface, consider a finitely supported probability measure \mu on Aut(X) such that \Gamma_{\mu} = is non elementary. We do not assume that Gamma_{\mu} contains any parabolic elements. We study and classify hyperbolic ergodic \mu-stationary probability measures on X.

Speaker: Harry Bray

Title: A logarithm law for stable subgroups

Abstract: We will discuss a logarithm law on the almost sure spiraling of geodesics around quasi-Fuchsian surface subgroups of closed hyperbolic 3-manifolds. In particular, we will discuss a quasi-independence result that applies even if the surfaces self-intersect. This result follows from a more general logarithm law for quotients of stable subgroups under certain growth gap conditions. This is based on joint work with Matthew Durham and Chenxi Wu.

Speaker: Jean Pierre Mutanguha

Title: Canonical decompositions of free-by-cyclic groups

Abstract: Free-by-cyclic groups can be defined as mapping tori of free group automorphisms. I will discuss a dynamical decomposition of automorphisms that produces a canonical decomposition of the corresponding free-by-cyclic groups. This will involve the partial order on attracting laminations for an automorphism. The decomposition of free-by-cyclic groups can be considered an extension of the JSJ decomposition of 3-manifolds. This talk is on joint work with Spencer Dowdall, Yassine Guerch, Radhika Gupta, and Caglar Uyanik.

Speaker: Liz Vivas

Title: Arithmetic Proofs of Parabolic Multiplicity in Complex Dynamics

Abstract: When a holomorphic map fixes a point with multiplier omega a root of unity, the number of attracting petal cycles, its parabolic multiplicity, is classically controlled by global dynamics: each cycle of petals must attract a singular value. For the families omega*z(1−z) and omega*ze^{−z}, this forces the multiplicity to equal 1. I will present a different proof of this fact that avoids global dynamics entirely. It uses arithmetic of cyclotomic fields to show that the relevant Taylor coefficient cannot vanish. This is joint work with Xavier Buff and Valentin Huguin.

Speaker: Fernando Al Assal

Title: Counting nearly Fuchsian surfaces

Abstract: Let M be a closed hyperbolic 3-manifold and epsilon>0. We will show that the number (1+epsilon)-quasifuchsian surfaces of genus at most g in M, up to homotopy and common finite covers, grows like g^{2g}. We will then use this to obtain a modified version of the minimal surface entropy rigidity theorem of Calegari, Marques, and Neves.

Speaker: Michelle Chu

Title: Geodesic lengths in arithmetic hyperbolic manifolds

Abstract: The length spectrum of an arithmetic hyperbolic manifold reflects the arithmetic of the underlying lattice. I will discuss how arithmetic methods can be used both to construct manifolds with prescribed geodesic lengths and to obtain quantitative bounds on their number and multiplicities.

Registration and Funding

Please register using the application form. Applications received before **September 1** will receive full consideration for funding. *Funding is only available for US based participants.*

If you are a PhD student, please ask your advisor to send a short support email to dynamicsrtg@math.wisc.edu

Parking

Parking lot 20 is near the math department, and it is free on the weekends. See below for a map of parking lots. You can also use the observatory drive (Lot 26) weekdays after 4:30pm, and on the weekends. On Friday afternoon (first talk of the conference), your best options are to pay for Lot 20, Lot 7, and Lot 17.

Locations and Hours

This page lists the various parking facilities available on the UW-Madison campus, including surface lot and gated parking facilities (ramps and garage). Included in the lists are each parking lot's hours of control. No vehicle storage is allowed; employees must submit a short-term vehicle storage request form to be considered.



Transportation Services

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- DMS-2230009: RTG: Geometry, Group Actions, and Dynamics at Wisconsin

Organizers

- Aaron Brown
- Osama Khalil
- Roland Roeder
- Caglar Uyanik
- Andrew Zimmer

Midwest Dynamical Systems Homepage



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