UNIVERSITY OF MICHIGAN
Department of Mathematics

Seminar & Events Bulletin: Topology

01-01-2013 to 06-30-2013

Thursday, January 17, 2013	
3:00pm-4:00pm	**Topology** -- Grigori Avramidi (University of Chicago) *Symmetries of aspherical manifolds* -- 3866 East Hall

Thursday, January 31, 2013	
3:00pm-4:00pm	**Topology** -- Priyam Patel (Rutgers) *Quantifying Residual Finiteness and LERF-ness in Terms of Geometric Data* -- 3866 East Hall

Wednesday, March 13, 2013	
3:00pm-4:00pm	**Topology** -- Michael Hopkins (Harvard University) *Ziwet Lecture II: Equivariant Homotopy Theory and the Solution to the Kervaire Invariant Problem* -- 1372 East Hall

Thursday, March 14, 2013	
3:00pm-4:00pm	**Topology** -- Michael Hopkins (Harvard University) *Ziwet Lecture III: Equivariant multiplicative closure* -- 3088 East Hall

Thursday, March 21, 2013	
12:00am-12:00am	**Topology** -- Asaf Hadari (Yale) *Homological Shadows of Attracting laminations* -- 3866 East Hall

Thursday, March 28, 2013	
3:00pm-4:00pm	**Topology** -- Thomas Koberda (Yale) *Curve complexes for right-angled Artin groups.* -- 3866 East Hall

Thursday, April 18, 2013	
3:00pm-12:00am	**Topology** -- Guillaume Dreyer (Notre Dame) *Parametrizing Hitchin components* -- 3866

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Abstracts

Topology
Thursday, January 17, 2013, 3:00pm-4:00pm
3866 East Hall
Grigori Avramidi (University of Chicago)
Symmetries of aspherical manifolds

I will describe some results bounding the isometry groups of Riemannian metrics on aspherical manifolds and of the lifted metrics on their universal covers. The general theme is that topological properties of an aspherical manifold often restrict the symmetries of an arbitrary complete Riemannian metric on that manifold. I will illustrate this by explaining why on a finite volume irreducible locally symmetric manifold, no metric has more symmetry than the locally symmetric metric. Possibly, I will also discuss why moduli space is a minimal orbifold.

Topology
Thursday, January 31, 2013, 3:00pm-4:00pm
3866 East Hall
Priyam Patel (Rutgers)
Quantifying Residual Finiteness and LERF-ness in Terms of Geometric Data

This talk will begin by defining residual finiteness (RF) and locally extended residual finiteness (LERF) for groups, followed by a brief history of the results that study the connection between these algebraic properties and the fundamental groups of surfaces and 3-manifolds. We will then describe what it means to quantify these group properties and present the results that quantify RF-ness and LERF-ness of hyperbolic surface groups in terms of geometric data. If time permits, we will conclude with an overview of similar techniques used to quantify residual finiteness for particular hyperbolic 3-manifold groups.

Topology
Wednesday, March 13, 2013, 3:00pm-4:00pm
1372 East Hall
Michael Hopkins (Harvard University)
Ziwet Lecture II: Equivariant Homotopy Theory and the Solution to the Kervaire Invariant Problem

Our solution to the Kervaire invariant problem made essential use of group actions in algebraic topology. In this talk I will describe some of the basic ideas in equivariant homotopy theory and how they are used to study the Kervaire invariant problem.

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Topology
Thursday, March 14, 2013, 3:00pm-4:00pm
3088 East Hall
Michael Hopkins (Harvard University)
Ziwet Lecture III: Equivariant multiplicative closure

The "multiplicative closure" of a set of elements in a commutative ring is the set of all products of powers of those elements. One of the innovations used in our solution to the Kervaire invariant problem revealed an unexpected subtlety in the analogue of this notion in equivariant homotopy theory. In this talk I will describe this analogy and explain the subtlety and the structures needed to deal with it.

Topology
Thursday, March 21, 2013, 12:00am-12:00am
3866 East Hall
Asaf Hadari (Yale)
Homological Shadows of Attracting laminations

Let S be a surface with punctures, and let $f \in Mod(S)$ be a pseudo-Anosov mapping class. Associated to f is an attracting lamination L, which is the limit under the forward orbit of f of any closed curve on S. We address the following question - is there a natural way to associate to L some natural object in the homology of S? If so, can it be described using some limiting process? What would such an object tell us about f? We show that there is indeed such an object, and that it possesses a surprising amount of structure. For instance, if f is in the Torelli group, then the homological lamination will be a convex polyhedron with rational vertices.

Topology
Thursday, March 28, 2013, 3:00pm-4:00pm
3866 East Hall
Thomas Koberda (Yale)
Curve complexes for right-angled Artin groups.

I will discuss an analogue of the curve complex for right-angled Artin groups and describe some of its properties. I will then show how it guides parallel results between the theory of mapping class groups and the theory of right-angled Artin groups. This represents joint work with S. Kim.

Topology
Thursday, April 18, 2013, 3:00pm-12:00am
3866
Guillaume Dreyer (Notre Dame)
Parametrizing Hitchin components