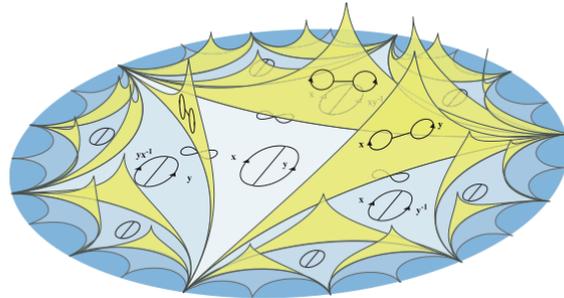


COLLOQUIUM

MATHEMATICS AND STATISTICS
QUEEN'S UNIVERSITY



A NIELSEN-THURSTON INSPIRED STORY OF ITERATING FREE GROUP AUTOMORPHISMS AND EFFICIENTLY DEFORMING GRAPHS

Abstract. While many fundamental contributions to the study of outer automorphisms of free groups date back to the early 20th century, the real explosion of activity in the field came with two much more recent developments: the definition by Culler and Vogtmann of the deformation space of metric graphs on a surface, namely Outer Space, and the development by Bestvina, Feighn, and Handel of a train track theory for outer automorphisms of free groups. The explosion was a result of a new ability to study free group outer automorphisms using generalizations of techniques developed to study surface homeomorphisms (mapping classes) via their action on the deformation space of metrics on the surface (Teichmüller space). In our talk, we focus specifically on a Nielsen-Thurston inspired story jointly studying: 1) outer automorphism conjugacy class invariants obtained by iteratively applying the automorphisms and 2) geodesics in Culler-Vogtmann Outer Space.

Catherine Pfaff
(University of California, Santa Barbara)

Catherine Pfaff obtained her Ph.D. in Mathematics from Rutgers University in 2012 under the supervision of Lee Mosher. Dr. Pfaff was Postdoctoral Research Fellow at the Université d'Aix-Marseille (2013-2014) and at the Universität Bielefeld (2014-2015). Since 2015, she is Ky Fan Visiting Assistant Professor at the University of California, Santa Barbara. Catherine Pfaff's research focuses on geometric group theory and geometric topology. In particular, she studies the outer automorphism group of the free group and Outer Space from a mapping class group perspective.

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2:30pm · FEBRUARY 16 · 2018