

Geometry, Groups and Dynamics/GEAR Seminar
(held at the Illinois hub of GEAR)

12:00 pm, Thursday, January 17, 2019, 243 Altgeld Hall

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Index properties of random automorphisms of free groups

Abstract: For automorphisms of the free group Fr , being "fully irreducible" is the main analog of the property of being a pseudo-Anosov element of the mapping class group. It has been known, because of general results about random walks on groups acting on Gromov-hyperbolic spaces, that a "random" (in the sense of being generated by a long random walk) element ϕ of $Out(Fr)$ is fully irreducible and atoroidal. But finer structural properties of such random fully irreducibles $\phi \in Out(Fr)$ have not been understood. We prove that for a "random" $\phi \in Out(Fr)$ (where $r \geq 3$), the attracting and repelling \mathbb{R} -trees of ϕ are trivalent, that is all of their branch points have valency three, and that these trees are non-geometric (and thus have index $< 2r-2$). The talk is based on a joint paper with Joseph Maher, Samuel Taylor and Catherine Pfaff.