

Geometry/Topology Seminar

Cut and paste invariants of manifolds and relations to cobordism

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Abstract: The classical problem of scissor's congruence asks whether two polytopes can be obtained from one another through a process of cutting and pasting. In the 1970s this question was posed instead for smooth manifolds: which manifolds M and N can be related to one another by cutting M into pieces and gluing them back together to obtain N ? In recent work with Renee Hoekzema, Mona Merling, Laura Murray, and Julia Semikina, we upgraded the group of cut-and-paste invariants of manifolds with boundary to an algebraic K-theory spectrum and lifted the Euler characteristic to a map of spectra. I will discuss how cut-and-paste invariants relate to cobordism of manifolds and how the novel construction categorifies these invariants. I will also discuss new results on the categorification of cobordism cut-and-paste invariants: the group of invariants preserved by both cobordism and cut-and-paste equivalence.

If you would like to join us for lunch please reach out to schapos@uic.edu

Wednesday, November 1 at 3:00 PM in 636 SEO