

## ***TOPOLOGY SEMINAR***

**Guest Speaker: Carmen Rovi**

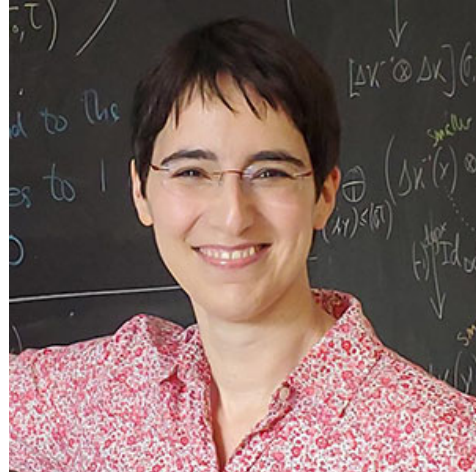
**Loyola University, Chicago**

**Date:** Tuesday, November 8, 2022

**Time:** 2:15 PM

**Location:** 117 Hayes-Healy Hall

**Zoom Link:** NA



***Lecture Title:***

**Cut and paste invariants of manifolds and relations to cobordism**

***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 get  $N$ ? 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.