UNIVERSITY AT ALBANY
State University of New York

College of Arts and Sciences
Department of Mathematics and Statistics

Algebra/Topology Seminar

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A Friendly Introduction to Lagrangian Realizations of Ribbon Cobordisms

Thursday, October 19, 2023
3:00 p.m. in BB-B012

Abstract. A knot is an embedding of S^1, which can be thought of as a piece of string that has been tied up and then had the ends glued together. Given two knots, a ribbon cobordism is a particularly nice surface with boundary the disjoint union of the two knots. Much work has been done to study these surfaces in the smooth topological setting. However, what happens when we add some geometric conditions and study knots and surfaces in a contact or symplectic manifold? It has long been known that every smooth knot has a Legendrian representative (knot which satisfies some extra geometric conditions). In this talk we will discuss why an analogous statement is true for ribbon cobordisms. In particular, if C is a ribbon cobordism in $[0,1] \times S^3$ from the link K_0 to K_1, then there are Legendrian realizations Λ_0 and Λ_1 of K_0 and K_1, respectively, such that C may be isotoped to a decomposable Lagrangian cobordism from Λ_0 to Λ_1. Along the way we will give a brief introduction to Legendrian knots and Lagrangian cobordisms. This is joint work with John Etnyre.