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

12:00 pm, Tuesday, March 28, 2017, 243 Altgeld Hall

Charles Delman (EIU)

Alternating knots and Montesinos knots satisfy the L-space knot conjecture

Abstract: An L-space is a homology 3-sphere whose Heegard-Floer homology has minimal rank; lens spaces are examples (hence the name). Results of Ozsváth - Szabó, Eliashberg - Thurston, and Kazez - Roberts show that a manifold admitting a taut, co-orientable foliation cannot be an L-space. Let us call such a manifold <i>foliar</i>. Ozsváth and Szabó have asked whether or not the converse is true for irreducible 3-manifolds; Juhasz has conjectured that it is. Restricting attention to manifolds obtained by Dehn surgery on knots in S^3, we posit the following: L-space Knot Conjecture. Suppose $\kappa \subset S^3$ is a knot in the 3-sphere. Then a manifold obtained by Dehn filling along κ is foliar if and only if it is irreducible and not an L-space. Using generalized surface decomposition techniques that build on earlier work of Gabai, Menasco, Oertel, and the authors, we prove that both alternating knots and Montesinos Knots satisfy the L-space Knot Conjecture. We believe these techniques will prove fruitful in the further study of taut foliations in 3-manifolds. Joint work with Rachel Roberts.

Video