

# Department of Mathematics and Computer Science

October 16, 2009

---

---

Friday, October 16, 4:00

COLLOQUIUM

Speaker: Charles Delman

Old Main 2231

Title: “Elementary Computation Methods  
for the Cord Ring of a Knot”

**Abstract:**

In 2005, Lenhard Ng introduced an interesting new invariant for knots, which he termed the *cord ring*. Although originally derived from very sophisticated algebraic topology involving contact homology, it has a very natural geometric interpretation and is quite computable. It seems to be quite different from other known knot invariants, distinguishing some knots that the others fail to distinguish, while failing to distinguish many knots that the others do. The cord ring also readily generalizes to higher dimensional knots and other manifold embeddings.

This talk will demonstrate very elementary geometric methods for computing the cord ring (more elementary than those described by Ng), with a focus on the computation for torus knots and 2-bridge knots. These methods show that the cord ring is related to surfaces on which the knot embeds incompressibly and to branched coverings by such embeddings.

This talk describes work in progress that began with the senior thesis of Susan Brooks (then Susan Wolf), done under my direction several years ago. Although the classification of torus knots and 2-bridge knots has long been known, the methods developed here illustrate interesting characteristics of the cord ring and, we hope, hold promise for substantial generalization.

SNACKS IN FACULTY LOUNGE AT 3:30 PM.  
EVERYONE WELCOME (EVEN IF YOU ARE UNABLE TO ATTEND THE TALK)

---

---