

# Graduate Seminar

**First Speaker:**

**Iren Darijani,  
Memorial University**

**Thursday, February 13**

**1:00 p.m., HH-3017**

## **The Isomorphism Problem of Group Rings**

**Abstract:**

If  $G$  and  $H$  are isomorphic groups, it is obvious that the group rings  $RG$  and  $RH$ , over any ring  $R$ , are also isomorphic. However, the converse is not always true. We can state the isomorphism problem as follow: under what conditions on  $R$  and  $G$  does the ring isomorphism  $RG \cong RH$  imply that  $G \cong H$ ? In this talk, first we will state some basic concepts of group rings and then we will have a look at some of the results that will lead to the following: if  $G$  is a finite metabelian group and  $H$  is another group such that  $ZG \cong ZH$  then  $G \cong H$ , which was proved by A. Whitcomb in 1968.

**Second Speaker:**

**Takehiko Yamaguchi,  
Memorial University**

## **Approximating the Homology of a Manifold**

**Abstract:**

Suppose  $M$  is a manifold from which we can sample points and measure their distances. Can we compute the homology of the manifold? In this talk, I will describe work of P. Niyogi, S. Smale, and S. Weinberger measuring how large the sample needs to be in order to compute the exact homology of  $M$  with high confidence.