Date: Friday, September 13, 2013
Speaker: Sam Evens (Notre Dame)
Title: Eigenvalue coincidences and orbits on the flag variety.

Abstract: This talk is based on joint work with Mark Colarusso which relates the Gelfand-Zeitlin integrable system to orbits of $K = GL(n-1) \times GL(1)$ on the variety of all flags in a n-dimensional complex vector space. For $x \in gl(n)$, let x_{n-1} be its upper left hand $(n-1)$ by $(n-1)$ corner. We consider the variety $X_k \in gl(n)$ consisting of matrices x with the property that x and x_{n-1} share at least $n-1$ generalized eigenvalues, counting multiplicity. We show that X_k is a union of irreducible components coming from K-orbits on the flag variety whose dimension exceeds the dimension of a closed K-orbit by $n-k-1$. We discuss an application, which allows us to show the quotient $X//K$ is an affine space.