

# *Lie Theory Seminar*



**Speaker:** Amy DeCelles  
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Thursday, December 1, 2011  
12:00 pm  
223 DeBartolo Hall

**Title:** Explicit fundamental solution for  $(\Delta - \lambda)^N$  on a symmetric space

**Abstract:**

We determine a fundamental solution for the differential operator  $(\Delta - \lambda)^N$  on the Riemannian symmetric space  $G/K$ , where  $G$  is any complex semi-simple Lie group, and  $K$  is a maximal compact subgroup. A global zonal spherical Sobolev theory enables us to use the harmonic analysis of spherical functions to obtain an integral representation for the solution. Then we obtain an explicit expression for the fundamental solution, which allows relatively easy estimation of its behavior in the eigenvalue parameter  $\lambda$ , with an eye towards further applications to automorphic forms involving associated Poincare series