1106-05-871 **Sergi Elizalde** and **Megan Martinez*** (megan.a.martinez.gr@dartmouth.edu). *Patterns in Random Walks.*

In this talk, we explore patterns in random walks in discrete time on the real number line. In such a random walk, we choose $n-1$ i.i.d. random variables that serve as the steps of the walk, $X_1, X_2, \ldots, X_{n-1}$. The walk is then the series $Z_0, Z_1, \ldots, Z_{n-1}$ where $Z_0 = 0$ and $Z_k = \sum_{i=1}^{k} X_i$. A set of n consecutive values in a random walk is associated to a permutation in S_n using relative ordering. With this setup, it is easy to see that not all patterns occur with equal probability; however, there are some instances where two patterns occur with equal probability given any probability distribution. A permutation and its reverse-complement will always have the same probability of occurring, but this is not the only case. The permutations 612435 and 354612 form a nontrivial example of this phenomenon.

We are interested in permutations $\pi, \tau \in S_n$ such that the probability π occurs in a random walk is equal to the probability τ occurs in a walk, regardless of the probability distribution of the steps. Our goal is to completely characterize the classes of permutations with equal probabilities. (Received September 08, 2014)