1139-05-11 **Mahir Bilen Can** and **Ozlem Ugurlu*** (ougurlu@tulane.edu), 6823 St Charles Ave, New Orleans, LA 70118. *The genesis of involutions.*

Let G be a complex semisimple algebraic group and B be a Borel subgroup of G. There are many situations where it is necessary to study the Borel orbits in G/G^θ, where θ is an involutory automorphism. This is equivalent to analyze $K = G^\theta$ orbits in the flag variety G/B. In fact, their geometry is of importance in the study of Harish-Chandra modules and their closures can be considered as Schubert varieties. The focus of this talk will be on the enumeration problem of Borel orbits in the symmetric space $SL(n,\mathbb{C})/S(GL(p,\mathbb{C}) \times GL(q,\mathbb{C}))$. We will show that the Borel orbits are parameterized by the lattice paths in a $p+1$ by $q+1$ grid moving by horizontal, vertical and diagonal steps weighted by an appropriate statistic. In addition we will present various t-analogues of the rank generating function for the inclusion poset of Borel orbit closures. (Received October 31, 2017)