1071-20-136 **Lucas Sabalka*** (sabalka@math.binghamton.edu) and **Dmytro Savchuk** (dsavchuk@math.binghamton.edu). *On the Geometry of a Proposed Curve Complex Analogue for $Out(F_n)$.*

The group $Out(F_n)$ of outer automorphisms of the free group has been an object of active study for many years, yet its geometry is not well understood. Recently, effort has been focused on finding a hyperbolic complex on which $Out(F_n)$ acts, in analogy with the curve complex for the mapping class group. In this talk on joint research with Dima Savchuk, we'll discuss some results about the geometry of edge splitting graph, or equivalently the separating sphere graph, a space on which $Out(F_n)$ acts and a proposed candidate for a curve complex analogue. We give a characterization of geodesic paths in this graph, and use our characterization to find lower bounds on distances between vertices. Our distance calculations allow us to find quasiflats of arbitrary dimension. Thus, this graph is not hyperbolic and has infinite asymptotic dimension. (Received March 01, 2011)