A toric variety $X_A$ is a subvariety of projective space $P^n$ parameterized by a set $A$ of $n + 1$ monomials in $Z^d$. Kapranov, Sturmfels, and Zelevinsky showed that the set of all degenerations of $X_A$ induced by the torus in $P^n$ is parameterized by the toric variety of the secondary polytope of $A$, and in fact Hausdorff limits of torus translates are all toric degenerations.

A set of $n + 1$ real numbers $A \subset R^d$ gives a map from the positive orthant $R^d_>$ to the $n$-simplex whose closure is an irrational toric variety. These likewise have torus translates by $R^a_>$ and the set of irrational toric degenerations is naturally identified with the secondary polytope of $A$. While these facts are immediate from the definitions, the main result of this talk, that all Hausdorff limits are toric degenerations, is not. The proof of this fact gives a new and completely elementary proof of the result of Kapranov, Sturmfels, and Zelevinsky. This is joint work with Elisa Postinghel and Nelly Villamizar of Oslo. (Received August 30, 2011)