1125-37-2217 **Joseph Auslander*** (`jna@math.umd.edu`). *Proximal and distal equivalence of minimal flows.*

This is joint work with Gernot Greschonig. A central problem in topological dynamics is the classification of minimal flows. An important invariant is the Ellis group of a flow, a closed subgroup of the automorphism group G of the universal minimal flow $(M;T)$. The Ellis groups classify minimal flows up to proximal equivalence. That is, two minimal flows $(X;T)$ and $(Y;T)$ have the same Ellis group if and only if there is a minimal flow $(Z;T)$ and proximal extensions (homomorphisms) $\alpha : Z \to X$ and $\beta : Z \to Y$. The remaining problem is the classification of minimal flows in the same proximal class, equivalently with the same Ellis group. This is accomplished by distal equivalence, the existence of a minimal flow $(Z;T)$ and distal homomorphisms $\alpha : Z \to X$ and $\beta : Z \to Y$. Invariants for distal equivalence are obtained in terms of minimal idempotents in the enveloping semigroup. Two minimal flows are isomorphic if and only if they are both proximally and distally equivalent. A minimal flow is determined by an "icer" (invariant closed equivalence relation) on M, which in turn is determined by a closed subgroup of G and certain subsets of the proximal relation of M. Necessary and sufficient conditions are obtained for the latter. (Received September 19, 2016)