1107-37-478 **Mike Boyle*** (`mmb@math.umd.edu`) and **Scott Schmieding**. *Group extensions for shifts of finite type: K-theory, Parry and Livsic.*

(Joint work with Scott Schmieding.) We extend and apply algebraic invariants and constructions for mixing finite group extensions of shifts of finite type. Up to topological conjugacy, such an extension can be presented by a square matrix A over Z_+G, the nonnegative part of the integral group ring of the group G. Topological conjugacy of the extensions is equivalent to strong shift equivalence over Z_+G of their defining matrices. Certain dynamical features are captured as algebraic invariants of these matrices. For G abelian, $\det(I-tA)$ captures the periodic data of the extension (of course); the nonabelian case is more interesting but quite managable. The classification of these extensions is greatly clarified by the identification of a strong shift equivalence class of matrices over ZG the ring with the group $NK_1(ZG)$ of algebraic K-theory. For example, Parry asked for nontrivial finite abelian G if only finitely many topological conjugacy classes of G-extension of a fixed nontrivial mixing shift of finite type could arise compatible with fixed periodic data. We show when $NK_1(ZG)$ is nontrivial that the answer is no regardless of the shift and periodic data. We also show for every G there is prescribed periodic data for which the answer is No. (Received January 20, 2015)