1067-20-147 **Alexander Joerg Hulpke*** (`hulpke@math.colostate.edu`), Department of Mathematics, 1874 Campus Delivery, Fort Collins, CO 80523. *Computing Conjugacy Classes of Elements and Subgroups in Matrix Groups.*

Recent developments for matrix groups (the so-called Matrix Group Recognition Project) have developed algorithms to construct a composition series for a finite matrix group, given by generators. Using Conjugacy Classes of Elements and Subgroups as example, I want to show how one can build on these results to perform higher-level calculations in such groups: The key to generalizing existing algorithms is to construct a homomorphism $\varphi\colon G \to G/Rad(G)$ onto the radical factor of G, and to split generating sets for subgroups into a part in $\ker\varphi$, represented as a polycyclic group, as well as representatives with nontrivial images. (Received July 27, 2010)