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**Andrew Berget\*** ([andrew.berget@wwu.edu](mailto:andrew.berget@wwu.edu)). *Simplicial complexes associated to matrix orbit closures*. Preliminary report.

Given an  $r$ -by- $n$  matrix, one constructs the locally closed set of matrices that are obtained from it by performing row operations and scaling of columns in all possible ways. This is a *matrix orbit closure*. We will describe a conjectural Gröbner basis for the prime ideal of a matrix orbit closure whose initial ideal is a square free monomial ideal. Using computer algebra, we guess the structure of the associated simplicial complex in a large family of cases. (Received February 26, 2017)