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**Stephen T Lovett\*** ([steve.lovett@enc.edu](mailto:steve.lovett@enc.edu)), Department of Mathematics, Eastern Nazarene College, 23 East Elm Street, Quincy, MA 02170. *Resolutions of Orthogonal and Symplectic Analogues of Determinantal Ideals.*

On Kac's list of linear algebraic groups acting on vector spaces with a finite number of orbits, there are only four doubly-infinite families. The closures of orbits in the first family correspond to determinantal varieties which are well understood while the three remaining families lead to orthogonal and symplectic analogues of determinantal varieties  $\bar{O}_{r_1, r_2}$  which have not received much attention.

In this paper, we find (non-minimal) resolutions of the coordinate rings of the varieties  $\bar{O}_{r_1, r_2}$ . We determine that "nearly all" such varieties are Cohen-Macaulay and for those that are Cohen-Macaulay we calculate the type. Furthermore, we provide a simple characterization that determines which varieties  $\bar{O}_{r_1, r_2}$  are Gorenstein. As an application, we present a class of ideals in  $k[Hom(E, F)]$  that are Gorenstein of codimension 4. (Received November 28, 2005)