1104-13-322   **Claudiu Raicu*** (`craicu@nd.edu`) and **Jerzy Weyman**. *The syzygies of some thickenings of determinantal varieties.* Preliminary report.

The space of $m \times n$ matrices admits a natural action of the group $GL_m \times GL_n$ via row and column operations on the matrix entries. The invariant closed subsets are the determinantal varieties defined by (reduced) ideals of minors of the generic $m \times n$ matrix. The minimal free resolutions for these ideals are well-understood by work of Lascoux and others. There are however many more invariant ideals which are non-reduced, and whose syzygies are quite mysterious. These ideals correspond to nilpotent structures on the determinantal varieties, and they have been completely classified by De Concini, Eisenbud and Procesi. I will recall the classical description of syzygies of determinantal varieties, and explain how this can be extended to a large collection of their thickenings. Joint work with Jerzy Weyman. (Received September 03, 2014)