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**Jake Levinson\*** (jlev@uw.edu), **Jarod Alper** (jarod@uw.edu) and **Rowan Rowlands** (rowanr@uw.edu). *Equivariant syzygies and apolarity*. Preliminary report.

I'll describe some ongoing work with Jarod Alper and Rowan Rowlands concerning syzygies of the apolar ideals of the determinant and permanent polynomials. The homological properties of an apolar ideal are linked to measures of algebraic complexity, such as (in this case) the Waring rank of the underlying polynomial.

We have computed the syzygies of the apolar ideal of the determinant, using the fact that these syzygies carry an action of  $GL_n \times GL_n$ . Even in low degrees, the syzygies differ from those of the permanent. (Received February 06, 2018)