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Klim Efremenko, J.M. Landsberg and **Hal Schenck*** (hschenck@iastate.edu), Iowa State Mathematics, 411 Morrill Road, Ames, IA 50011, and **Jerzy Weyman**. *Permanental ideals and complexity theory*.

The minimal free resolution of the Jacobian ideals of the determinant polynomial were computed by Lascoux, and it is an active area of research to understand the Jacobian ideals of the permanent. As a step in this direction we compute several new cases and completely determine the linear strand of the minimal free resolutions of the ideals generated by sub-permanents. Our motivation is to lay the groundwork for the use of commutative algebra in algebraic complexity theory, building on the use of Hilbert functions in work of Gupta-Kamath-Kayal-Saptharishi. We compute several such Hilbert functions relevant for complexity theory. (Received February 20, 2018)