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Jack Jeffries and **Jonathan Montaña*** (jmontano@math.purdue.edu), 150 N. University Street, West Lafayette, IN 47907, and **Matteo Varbaro**. *Multiplicities of Classical Varieties*.

The j -multiplicity plays an important role in the intersection theory of Stückrad-Vogel cycles, while recent developments confirm the connections between the ϵ -multiplicity and equisingularity theory. In this talk, I will report joint work with Jack Jeffries and Matteo Varbaro, where we are able to compute the j -multiplicity of all the ideals defining rational normal scrolls by establishing a relationship between the j -multiplicity of an ideal and the degree of its fiber cone. We are also able to express the j - and ϵ -multiplicity of ideals defining determinantal varieties as the integral of a polynomial over a region. (Received January 28, 2014)