1117-13-212 **Luke Oeding*** (oeding@auburn.edu), Department of Mathematics and Statistics, 221 Parker Hall, Auburn, AL 36849. *Are all secant varieties of Segre products arithmetically Cohen-Macaulay?* Preliminary report.

Implicitization problems are central in Applied Algebraic Geometry. Starting with an algebraic-statistical model for structured data (such as tensors with low rank) we often ask for the implicit defining equations for the associated algebraic variety. Usually some of these equations can be found (for example by linear algebra, ad hoc methods, or analyzing symmetry). A difficult problem is then to determine when the known equations suffice. Algebraic properties such as the arithmetically Cohen-Macaulay (aCM) property can be a big help, if it can be determined.

In this talk I will focus on tensors of restricted border rank, or secant varieties of Segre products. I will present what is known about the aCM question and how it can be used for the implicitization problem. I'll present recent computational experiments as well as a structural property of secant varieties that leads me to conjecture an affirmative answer to the aCM question. (Received January 14, 2016)