1014-14-606 **David Cox** and **Jessica S Sidman*** (jsidman@mtholyoke.edu), Department of Mathematics and Statistics, 415a Clapp Laboratory, Mount Holyoke College, South Hadley, MA 01075. *Secant varieties of smooth toric varieties.*

Algebraic geometers have long been interested in secant varieties. More recently, the algebraic statistics community has discovered relationships between secant varieties and mixture models. Many of the varieties that arise in algebraic statistics are toric varieties. If we wish to work computationally with a secant variety, numerical invariants such as its dimension and degree give a rough sense of its size. I will discuss results which give the dimension and degree of the secant variety of a smooth toric variety under suitably nice conditions. (Received September 21, 2005)