

1117-92-42

Luis David Garcia-Puente* (lgarcia@shsu.edu), **Iliana De La Cruz**, **Taylor Spino**,
Melissa Stadt and **Catherine Sullivan**. *Algebraic Statistics Applications in
Epidemiology*. Preliminary report.

Interactions between single nucleotide polymorphisms (SNPs) and complex diseases have been an important topic throughout epidemiological studies. Previous studies have mostly focused on gene variables at a single locus. In this talk, I will discuss a focused candidate gene study to test the interaction of multiple SNPs with the risk of different types of cancer. Using the R package `algstat`, developed by Kahle, Garcia-Puente, and Yoshida, we implemented an algebraic statistics method that can test for independence between several variables and the disease. We applied our methods to the study of gene-gene interaction on cancer data obtained from the European case-control study Gen-Air extending previous work by Ricceri, Fassino, Matullo, Roggero, Torrente, Vineis, and Terracini. (Received December 22, 2015)