1131-13-184 **Michael DiPasquale*** (mdipasq@okstate.edu), Department of Mathematics, 401 Math Sciences Building, Stillwater, OK 74078. *Freeness of multi-Coxeter arrangements of type A.*

Freeness of arrangements and multi-arrangements is a difficult and central topic in arrangement theory. Terao (2002) showed that multi-Coxeter arrangements with the same multiplicity on each hyperplane are free by constructing derivations defined using the ring of invariants. In this talk we will describe some recent progress in understanding freeness of multi-braid arrangements; that is multi-Coxeter arrangements of type A. The most general class of free multi-braid arrangements to date, due to Abe, Nuida, and Numata (2009), can be described via signed-eliminable graphs (a signed generalization of chordal graphs). We extend their work to show that on a large cone in the lattice of potential multiplicities, the only free multi-braid arrangements are those identified by Abe-Nuida-Numata. This partially extends joint work with Francisco, Mermin, and Schweig on the A_3 braid arrangement. No knowledge of arrangements will be assumed. (Received July 14, 2017)