1166-13-93 **Patricia Klein*** (klein847@umn.edu) and **Anna Weigandt**. *Degenerations of matrix Schubert varieties through geometric vertex decomposition and bumpless pipe dreams.*

Knutson and Miller established a connection between the anti-diagonal Gröbner degenerations of matrix Schubert varieties and the pre-existing combinatorics of pipe dreams. They used this correspondence to give a geometrically-natural explanation for the appearance of the combinatorially-defined Schubert polynomials as representatives of Schubert classes. Recently, Hamaker, Pechenik, and Weigandt proposed a similar connection between diagonal degenerations of matrix Schubert varieties and bumpless pipe dreams, newer combinatorial objects introduced by Lam, Lee, and Shimozono.

We will describe recent progress on this proposal. Our main tool will be geometric vertex decomposition, introduced by Knutson, Miller, and Yong. We will show how geometric vertex composition tracks bumpless pipe dreams and explain how this tracking allows us, via previous work of Klein and Rajchgot, to implement a liaison-theoretic approach due to Gorla, Migliore, and Nagel for finding initial ideals. (Received February 14, 2021)