December 5: Dongkwan Kim (University of Minnesota), "Affine matrix-ball construction, asymptotic Hecke algebras, and the Lusztig-Vogan bijection for GL_n."

In 1985, Shi found a generalization of the Robinson-Schensted algorithm to affine symmetric groups and described their Kazhdan-Lusztig cells in terms of combinatorics. Based on his result, Xi proved a conjecture of Lusztig concerning the asymptotic Hecke algebras of GL_n. This provides a ring isomorphism between such algebras attached to two-sided cells and some matrix algebras.

Recently, Chmutov, Lewis, Pylyavskyy, and Yudovina developed another the affine generalization of the Robinson-Schensted algorithm, called the affine matrix-ball construction. In this talk, I will describe its mechanism briefly and show that it may be regarded as a unification of the results of Shi and Xi. Also, this algorithm can be used to establish the Lusztig-Vogan bijection for GL_n, and I will show that this bijection coincides with the other one defined and developed by Achar, Bezrukavnikov, Ostrik, and Rush. This work is joint with Pavlo Pylyavskyy.