Title: Generalized Weyl modules and nonsymmetric q-Whittaker functions
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Abstract: For the current algebra of a finite-dimensional simple Lie algebra, there are universal finite-dimensional highest weight modules known as Weyl modules. These modules have been studied extensively by
Chari-Pressley, Chari-Loktev, Fourier-Littelmann, and others. Their graded characters are known to coincide with well-known objects from algebraic combinatorics, namely the Macdonald polynomials specialized at t=0.

This talk will focus on joint work with E. Feigin and I. Makedonskyi in which we study "generalized" Weyl modules. These are graded modules
for the Borel subalgebra of the associated affine Lie algebra. We will explain the connections between the graded characters of these modules, nonsymmetric Macdonald polynomials, and nonsymmetric q-Whittaker functions.

Generally, q-Whittaker functions are defined as eigenfunctions of the q-Toda difference operators. We show that a generating function for the graded characters of generalized global Weyl modules is an eigenfunction of Dunkl-type operators associated with the q-Toda difference operators, i.e., this generating function is a nonsymmetric q-Whittaker function. This implies certain linear relations among the characters of generalized Weyl modules.