1106-05-843 **Anna Puskás*** (puskas@ualberta.ca). *Highest-weight crystals, Demazure-Lusztig operators and Metaplectic Whittaker functions.*

Two separate approaches to the construction of p-adic metaplectic Whittaker functions can be described in the language of combinatorial representation theory. One approach, due to Chinta and Offen for GL_r and to McNamara in general, represents the spherical Whittaker function in terms of a sum over a Weyl group. The second approach, by Brubaker, Bump and Friedberg and separately by McNamara, expresses it as a sum over a highest weight crystal. In the special case of the non-metaplectic spherical function, these constructions are linked by Tokuyama's theorem. Further, in the non-metaplectic case, work of Brubaker, Bump and Licata describes Iwahori-Whittaker functions using Demazure-Lusztig operators.

In this talk, we present a generalization of Tokuyama's theorem. The result links the two constructions of the metaplectic spherical Whittaker function using only combinatorial methods. In addition, it presents a way of recovering the construction of certain Iwahori-Whittaker functions as a sum over a Demazure-crystal. The main tools involved are metaplectic Demazure and Demazure-Lusztig operators, introduced in joint work with Gautam Chinta and Paul E. Gunnells. (Received September 07, 2014)