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**David M. Goss\***, 231 West 18th Avenue, Department of Mathematics, The Ohio State University, Columbus, OH 43210. *Hecke operators and distributions in characteristic  $p$ .*

It has been known for some time now how to define cusp forms, etc., on the Drinfeld upper half-plane and attach Hecke operators to them. For certain special eigenforms one has been able to calculate exactly the eigenvalues involved. This follows because the Hecke action on the first non-zero element of the  $q$ -expansion is extremely simple. However, the Hecke action on the other coefficients is totally bewildering as one encounters a combinatorial nightmare. This mess has stalled progress.

On the other hand, in the early 1990's J. Teitelbaum expressed such cusp forms as integrals over certain distributions. Unlike the classical situation, it turns out that this integral formulation is the key towards deriving relatively simple closed formulas for the Hecke action.

These closed formulas suggest a number of interesting conjectures which will be covered in this talk. (Received July 18, 2007)