February 12, 2003: Alexander Braverman (Harvard), "From automorphic sheaves to Drinfeld shtukas." (Joint work with Y.Varshavsky)

Drinfeld has initiated (by working out the case of $GL(2)$) two geometric approaches to Langlands' conjectures for global fields of positive characteristic—one by constructing the so called "automorphic sheaves" and the other studying the cohomology of the moduli spaces of "Drinfeld shtukas" (or F-bundles).

The notions of automorphic sheaves makes sense for any reductive group G; the notion of F-bundles has been recently generalized to any G by Y. Varshavsky. He conjectured that one could use their moduli spaces to study Langlands' conjectures for general reductive groups G (generalizing the works of Drinfeld and Lafforgue).

The purpose of this talk is to connect the two approaches (for any reductive group G): namely given an automorphic sheaf we shall produce the corresponding piece of the cohomology of the moduli spaces of F-bundles by means of a simple geometric procedure. This proves Varshavsky's conjecture in some cases.

This talk will be self-contained. In particular, no previous familiarity with either Drinfeld shtukas or automorphic sheaves will be assumed.