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**Pavel Etingof** and **Travis Schedler\*** ([trasched@math.mit.edu](mailto:trasched@math.mit.edu)). *Poisson Traces and D-Modules*.

A Poisson trace on a Poisson variety is a functional which is invariant under the flow of Hamiltonian vector fields. Such traces are defined only globally, not locally. In this talk, I will consider the local approach, by studying the D-module which is the quotient of all differential operators by the Hamiltonian vector fields. Using this, one can prove that the space of Poisson traces is finite-dimensional when the variety has finitely many symplectic leaves, and that quantizations in this case have finitely many irreducible representations.

If time permits, I will explain how to use related ideas to prove a conjecture of Alev, that the space of Poisson traces is equal to the space of Hochschild traces of the quantization in the case when the variety is a symmetric power of a surface in three-dimensional space cut out by a quasihomogeneous polynomial, which has an isolated singularity at the origin. This includes the Kleinian singularities, which are the quotients of two-dimensional space by finite subgroups of  $SL(2)$ . (Received September 12, 2009)