

BOSTON UNIVERSITY GEOMETRY SEMINAR

Poisson traces and D-modules

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Monday, March 1, 3-4 pm in MCS 135
Tea 2:45-3 in MCS 153

Abstract: 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 finite-dimensional representations. More generally, it is enough for an associative algebra to be finite over its center, which is of this form. As a corollary, symplectic reflection algebras have finitely many irreducible finite-dimensional representations.

This is joint work with P. Etingof.