Holonomic Poisson Manifolds

Brent Pym*

brent.pym@ed.ac.uk

I will describe a natural nondegeneracy condition on the singularities of Poisson brackets, called holonomicity. It is closely connected with the divergence of Hamiltonian vector fields. The motivation comes from deformation theory: roughly speaking, holonomic Poisson manifolds are the ones whose deformation spaces are as finite-dimensional as possible. More precisely, the corresponding derived deformation complex is a perverse sheaf. As an application, I will explain how to determine the deformation spaces of some natural Poisson manifolds, which are obtained as moduli spaces of bundles over elliptic curves.

*School of Mathematics, University of Edinburgh, Peter Guthrie Tait Road, Edinburgh, EH9 3FD, UNITED KINGDOM