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Log-Canonical Poisson Brackets

Given any point on a Poisson manifold Weinstein's splitting theorem gives canonical coordinates, also called Darboux coordinates, on a neighborhood around this point. We will show that these canonical coordinates do not exist when we change categories and work with algebraic functions on a Poisson variety. The example used will be affine space with a log-canonical Poisson bracket. One motivation for the log-canonical Poisson bracket comes from cluster algebras. We will briefly touch on the connections between cluster algebras and Poisson geometry. This is joint work with Nicholas Ovenhouse.