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From local to global deformation quantization of Poisson manifolds

We give a construction of a deformation quantization of the algebra of functions on a Poisson manifold, based on Kontsevich's local formula. The deformed algebra of functions is realized as the algebra of horizontal sections of a bundle of algebras with a flat connection. The construction is based on a geometric-algebraic interpretation, in terms of connections and curvature, of four special cases of the Kontsevich formality theorem on R^d .

In this talk, I will review the content of the formality theorem, which is based on Stokes' theorem on a compactification of the configuration space of n points on the upper half plane. I will then show how this result can be applied to the construction of a deformation of the algebra of functions on a Poisson manifold.

This talk is based on joint work with A.S. Cattaneo and L. Tomassini.