

Homotopy poisson brackets and thick morphisms

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For an arbitrary manifold M , consider the supermanifolds $\Pi T M$ and $\Pi T^* M$, where Π is the parity reversion functor. The supermanifold $\Pi T M$ has an odd vector field that can be identified with the de Rham differential d ; functions on it can be identified with differential forms on M . The supermanifold $\Pi T^* M$ has a canonical odd Poisson bracket $[\cdot, \cdot]$ (the antibracket); functions on it can be identified with multivector fields on M . An arbitrary even function P on $\Pi T^* M$ which obeys the master equation $[P, P] = 0$ defines an even homotopy Poisson structure on the manifold M and an odd homotopy Poisson structure (the "higher Koszul brackets") on differential forms on M . We construct a nonlinear transformation from differential forms endowed with the higher Koszul brackets to multivector fields considered with the antibracket by using the new notion of a thick morphism of supermanifolds, a notion recently introduced. (Based on joint work with Th. Voronov.)

References

- [1] Th. Th. Voronov, "Nonlinear pullbacks" of functions and L_∞ -morphisms for homotopy Poisson structures, *J. Geom. Phys.* **111** (2017), 94–110.