Realizations of Lie algebras, left-right duality, and differential forms on noncommutative spaces

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In this talk we present a construction of a bicovariant differential calculus on a noncommutative (NC) space of the Lie algebra type. The differential algebra is constructed as the enveloping algebra of a Lie superalgebra g generated by NC coordinates and one-forms. The generators of g admit a realization as formal power series in a super-Weyl algebra. We define left-right dual realizations of the underlying NC space which induce left-right dual star-products on the algebra of commutative coordinates. We show that in the Weyl symmetric ordering the dual realizations are given in terms of the two generating functions for the Bernoulli numbers. This realization is then generalized to the differential algebra of forms on the given space.