

On Noncommutative Sinh-Gordon Equation

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In this talk we give the noncommutative sinh-Gordon equation. We generalize linear system and Lax pairs for sinh-Gordon equation in noncommutative space. This generalization gives a nontrivial sinh-Gordon equation and extra constraints. These constraints are different from the constraint obtained by M. Moriconi and I.C. Carnero, Nucl. Phys. **B673** (2003) 437. These constraints become total derivatives. This noncommutative sinh-Gordon equation reduces to ordinary sinh-Gordon equation and constraints of the model vanish in the commutative limit. The noncommutative version of linear system (or equivalently zero-curvature representation) and Lax pair give an integrable noncommutative sinh-Gordon equation. We check the integrability at perturbative level. We give a set of Backlund transformation for the zeroth order sinh-Gordon equation and first order correction to zeroth order Backlund transformation.