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Manifest T-Duality from a World-Sheet Perspective

Monday, 6 May 2019 16:30 (55 minutes)

After discussing some proposals for a string world-sheet manifestly invariant under the $O(D, D)$ Abelian T-duality, the more general notion of Poisson-Lie T-duality will be introduced together with the one of Drinfeld double that constitutes the algebraic structure necessary to the existence of such duality. As illustrating examples, the three-dimensional Isotropic Rigid Rotor and the Principal Chiral Model will be investigated, aiming at understanding how such duality explicitly works. Both the models are described by sigma models having the group manifold of SU(2) as target space and their respective duals are introduced having the Poisson-Lie dual of SU(2) as configuration space. A "double" generalized action, i.e. a sigma model having SL(2,C), i.e. the Drinfeld double of SU(2), as target space is then defined containing twice as many variables as the original. It reduces to the original action or to its dual, once constraints are suitably implemented. Furthermore, the geometric structures of these double actions can be understood in terms of Generalized Geometry.

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