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Generalized Kinematics and Dynamics for Double Field Theory

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Double Field Theory can be formulated on a $2d$ -dimensional para-Hermitian manifold (P, η, ω) by supplementing the $O(d, d)$ metric η with an almost symplectic two-form ω . Together η and ω provide a bi-Lagrangian splitting of the tangent bundle TP into two Lagrangian subspaces. I will sketch how to construct a canonical connection and a corresponding generalized Lie derivative for the Leibniz algebroid on TP . Under certain integrability conditions the symmetry algebra closes for general η and ω , even when they are not flat and constant. This provides a generalization of the kinematical structure of DFT. By including the generalized metric H into the setup - which thus becomes para-quaternionic - we can construct a connection compatible with all three structures (η, ω, H) and thus can also generalize the dynamics. The precise relation between DFT and generalized geometry is also discussed.

Orateur: RUDOLPH, Felix