Exploring Stringy Geometries with Double Field Theory

Only a fraction of the vast landscape of vacua in string theory is accessible from supergravity. Stringy geometries, whose properties are governed by the extended nature of the string, are beyond its scope. Double Field Theory (DFT), which makes T-duality on tori manifest at the level of an effective field theory, provides a convenient tool to explore vacua beyond the supergravity regime. Despite the substantial progresses made in this direction, there are still open questions and technical ambiguities. Some of them can be solved by extending the derivation of DFT from a torus to more general non-abelian group manifolds. After a short review of the existing formalism, I derive such a theory, called DFT_WZW, using Closed String Field Theory applied to Wess-Zumino-Witten models. Further, I discuss its connection to half maximal gauged supergravities in lower dimensions. Even for those of them who can not be generated by a supergravity compactification, DFT_WZW provides a higher dimensional origin.