

Dual formulation of covariant duality-symmetric action of D3-brane

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We present covariant nonlinear duality-symmetric action of kappa-symmetric D3-brane in dual formulation. This construction generalises the Zwanziger action by using the PST-covariantisation, nonlinearisation, and suitable inclusions of coupling with external fields. The covariantisation made use of three auxiliary scalar fields. The theory possesses, in addition to other gauge symmetries, two local PST symmetries, which are essential to realise duality symmetry and to ensure that the three auxiliary scalar fields have no dynamics. The theory is also checked to possess kappa-symmetry. The equations of motion and on-shell action are also shown to match with those of the standard D3-brane action.

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