

A note on the uniqueness of interactions between Pauli-Fierz and an Abelian three-form gauge fields in eleven spacetime dimensions

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Abstract

Cross-couplings between a massless spin-two field (described in the free limit by the Pauli-Fierz action) and an Abelian three-form gauge field in $D = 11$ are investigated. These consistent interactions was obtained on the grounds of smoothness in the coupling constant, locality, Lorentz covariance, Poincaré invariance, and the presence of at most two derivatives in the interacting Lagrangian. We prove the uniqueness of the eleven-dimensional interactions between a graviton and a three-form prescribed by General Relativity.

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