

Linearized Gravity and Its Dual Formulations: Yes-Go Results on Their Consistent Couplings

C. Bizdadea, E. M. Cioroianu, I. Negru,
S. O. Saliu, S. C. Sararu

Faculty of Physics, University of Craiova,
13 Al. I. Cuza Str., Craiova 200585, Romania

bizdadea@central.ucv.ro manache@central.ucv.ro inegru@central.ucv.ro
osaliu@central.ucv.ro scsararu@central.ucv.ro

Abstract

Some recent yes-go results concerning consistent couplings involving mixed symmetry tensor fields are reported. Only particular classes of mixed symmetry tensor fields, which are dual to linearized gravity in various dimensions, are considered. The method used to generate consistent couplings is based on the deformation of the solution to the master equation combined with specific techniques of local Becchi-Rouet-Stora-Tyutin cohomology. In each case the deformations are constructed under the general hypotheses of analyticity in the coupling constant, space-time locality, Lorentz covariance, Poincaré invariance, and preservation of the differential order of the interacting field equations with respect to their free limit. The emerging results indicate that dual formulations of linearized gravity are far from being rigid under the introduction of consistent couplings, so there is still hope for providing an alternative, finite setting for General Relativity.

Keywords: local BRST cohomology, consistent interactions, dual formulations of linearized gravity.

PACS number: 11.10.Ef