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Title:	Augmented superfield approach to nilpotent symmetries of the modified version of 2D proca theory
Authors:	Krishna, S. (/jspui/browse?type=author&value=Krishna%2C+S.)
Keywords:	nilpotent Becchi-Rouet-Stora-Tyutin (BRST) 2D proca theory
Issue Date:	2015
Publisher:	Hindawi Publishing Corporation
Citation:	Advances in High Energy Physics, 15
Abstract:	We derive the complete set of off-shell nilpotent and absolutely anticommuting Becchi-Rouet-Stora-Tyutin (BRST), anti-BRST, and (anti-)co-BRST symmetry transformations for all the fields of the modified version of two -dimensional (2D) Proca theory by exploiting the "augmented" superfield formalism where the (dual-)horizontality conditions and (dual-)gauge invariant restrictions are exploited together. We capture the (anti-)BRST and (anti-)co-BRST invariance of the Lagrangian density in the language of superfield approach. We also express the nilpotency and absolute anticommutativity of the (anti-)BRST and (anti-)co-BRST charges within the framework of augmented superfield formalism. This exercise leads to some novel observations which have, hitherto, not been pointed out in the literature within the framework of superfield approach to BRST formalism. For the sake of completeness, we also mention, very briefly, a unique bosonic symmetry, the ghost-scale symmetry, and discrete symmetries of the theory and show that the algebra of conserved charges provides a physical realization of the Hodge algebra (satisfied by the de Rham cohomological operators of differential geometry).
Description:	Only IISERM authors are available in the record.
URI:	https://www.hindawi.com/journals/ahep/2015/258536/ (https://www.hindawi.com/journals/ahep/2015/258536/) http://hdl.handle.net/123456789/3097 (http://hdl.handle.net/123456789/3097)
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