

Non(Anti)commutative Field Theories: Model Building and Renormalizability Properties

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Abstract

We discuss one particular model of non(anti)commutative superspace. The deformation is non-hermitian and given in terms of the SUSY covariant derivatives D_α . We construct a deformed Wess-Zumino action and analyze its renormalizability properties. One-loop divergences in the two-point, three-point and four-point Green functions are calculated. In the general model we find that divergences in the four-point function cannot be absorbed and thus our model is not renormalizable. However, there is a special choice of the free parameters in the model that renders renormalizability. We discuss this choice and other possibilities to render the model renormalizable.

Keywords: supersymmetry, nonhermitian twist, deformed Wess-Zumino model, renormalizability, one-loop effective action