

Institut Ruđer Bošković
ZAVOD ZA TEORIJSKU FIZIKU
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SEMINAR ZAVODA ZA TEORIJSKU FIZIKU
(Zajednički seminari Zavoda za teorijsku fiziku,
Zavoda za eksperimentalnu fiziku IRB-a i Fizičkog odsjeka PMF-a)

Two contributions to make noncommutative field theory relativistically covariant

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Mjesto: IRB, dvorana I krilo

Abstract:

The first part of my talk will be based on arXiv:1112.2426, (under publication), in which I introduced in a Lorentz-covariant way the basic tools of differential geometry in kappa-Minkowski noncommutative spacetime. As an application, I will show the analysis of symmetries and conserved quantities of a complex scalar field. The tools I introduced will be useful, I believe, in constructing more interesting field theories in a covariant way, e.g. gauge theories. The second part of my talk will be based on PhysRevD.86.084032 with J. Carmona and J. Cortes. In this work we considered from a phenomenological point of view generic deformations of the kinematical structure of special relativity, of which the kappa-Poincar group is an example. We studied, at first order in the deformation energy scale, the sufficient conditions in order to retain the equivalence between inertial observers. The deformation dictated by the kappa-Poincar group, for example, satisfy these conditions.

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