

Path integral for non-canonical Lagrangians and its applications

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We consider a class of Lagrangians in which the kinetic term has a noncanonical form. Among models based on this class of Lagrangians, usually referred to as k-essence, and in the context of cosmology and inflation theory to k-inflation models, we consider in more details a family of Dirac-Born-Infeld (DBI) Lagrangians.

In the last several decades they find a significant room of application in cosmology and inflation theory. Dynamics governed by DBI Lagrangians are closely related to dynamics of the tachyon fields. We present the new results on path integral formulation of the Inverted Caldirola-Kanai oscillator, using method of the locally equivalent quadratic actions.

Our presentation is completed by a short discussion of DBI Lagrangians dynamics on nonarchimedean spaces, their p-adic and adelic aspects and application in cosmology.

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