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Effective action and homological perturbation lemma

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Loop homotopy Lie algebras, which appear in closed string field theory, are a generalization of homotopy Lie algebras. For a loop homotopy Lie algebra, we transfer its structure on its homology and prove that the transferred structure is again a loop homotopy algebra. Moreover, we show that the homological perturbation lemma can be regarded as a path integral, integrating out the degrees of freedom which are not in the homology. The transferred action then can be interpreted as an effective action in the Batalin-Vilkovisky formalism.

A review of necessary results from Batalin-Vilkovisky formalism and homotopy algebras is included as well.

(the work is a part of master thesis)

Sekce

Teoretická fyzika

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