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Государственный Университет «Дубна»
Кафедра фундаментальных проблем физики микромира

организуют

8, 9, 10 и 11 февраля 2016 года,

в аудитории Д.И. Блохинцева (4 этаж ЛТФ)

курс лекций

Elements of QFT in Curved Space -Time

Ilya L. Shapiro

Universidade Federal de Juiz de Fora, MG, Brazil

8.02.16, 11:00

Lecture 1.

GR and its limits of applicability, Planck scale. Quantum gravity and importance of semi-classical approach. Formulation of quantum field theory on curved background. Covariance and renormalizability in curved space-time.

9.02.16, 14:30

Lecture 2.

Renormalization and renormalization group in curved space. Brief review of calculational methods. Renormalization in the vacuum sector of the theory.

10.02.16, 11:00

Lecture 3.

Conformal anomaly and anomaly-induced effective action. Ambiguities of effective action. Applications:

- 1) Classification of quantum vacuum states on black hole background.
- 2) Starobinsky model and its modifications.

10.02.16, 11:00

Lecture 4.

Effective quantum field theory in curved space-time. Decoupling theorem in curved space-time. The problem of cosmological constant and running in cosmology. Phenomenological approach. Some astrophysical applications.