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PT symmetric classical and quantum cosmology

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According to modern observational data the phantom equation of state for dark energy is not excluded. This scenario creates problems with stability of universe evolution. An alternative to phantom models is given by models of scalar matter with non-Hermitian, PTsymmetric interaction[1]. In this talk we present the set of such models with several scalar fields which are exactly (analytically) solvable both in classical and in quantum case[2]. The latter case is investigated in the Friedmann-Robertson-Walker minisuperspace approach. We use advantages of analytical solvability to disentangle the differences between phantom and PT symmetric dynamics and give arguments in favor to the latter one.

References

[1] A. A. Andrianov, F. Cannata, A. Y. Kamenshchik and D. Regoli, Phantom cosmology based on PT symmetry, Int. J. Mod. Phys. D, 19 (2010), 97–111.

[2] A. A. Andrianov, O. O. Novikov, Chen Lan. Quantum cosmology of the multi-eld scalar matter: some exact solutions, arXiv:1503.05527v1 (2015), 1-16.

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