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REPORT

on the PhD thesis of **Nurtayeva Galiya Kadyrkhanovna** entitles “Thick brane solutions in multidimensional theory of gravities” submitted in fulfillment of the requirements for the degree of Doctor of Philosophy (PhD) in specialty “6D060400-Physics”

The PhD thesis of Nurtayeva Galiya Kadyrkhanovna is devoted to the calculation and interpretation of hypothetical astrophysical objects in modified four-dimensional theory of gravity, within the framework of $f(R)$ modified gravity.

The thesis has the scientific and practical value by obtaining new regular solutions in gravitational theories and necessary task for understanding the interaction of gravity. Domain walls and thick branes are hypothetical objects that may be discovered in the future. Therefore, the study of their properties is an important task in theoretical physics.

Nurtayeva Galiya Kadyrkhanovna spent 78 days on a scientific research visit in the gravitation & cosmology physics group at Ewha Womans University, Korea. During research visit, she studied on the classical solutions of black hole, cosmological models, and their physical properties and geometrical structures. She also studied the thermodynamic analogy of black hole and its causal structures such as Penrose diagram. She studied the brane black hole solution and cosmological models in last two weeks. She also participated at the programs in our lab including seminars held in Korea and be trained by the research disciplines on her thesis topic.

She also participated the local conference on gravitation & cosmology held in Resom Resort at Jecheon which is located at the middle of Korean peninsula from Aug. 26 –27. During the conference she learned on recent issues on gravitation & cosmology and had many discussions with Korean experts on her thesis.

As a scientific adviser, I confirm that the PhD thesis of Nurtayeva Galiya Kadyrkhanovna contains original research and new results. The thesis satisfies all the highest requirements for the doctoral dissertations, and the author of the dissertation certainly deserves to be awarded the degree of Doctor of Philosophy (PhD) in the specialty "6D060400 - Physics“



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