REPORT

on the PhD thesis of **Zhami Bakytzhan** entitled "**Investigation of hot rotating white dwarfs in general relativity**" submitted in fulfillment of the requirements for the degree of Doctor of Philosophy (PhD) in specialty «6D060400 – Physics»

The PhD thesis of Zhami B. is devoted to the investigation of equilibrium configurations of white dwarfs (with a focus mainly on the effects of general relativity, finite temperatures, nuclear composition and rotation). This thesis is crucial in terms of construction a realistic theory of white dwarfs which will be in correspondence with observation.

First, the author has considered equations of state which can be used to describe white dwarf matter and analyzed their properties. Second, the relations between exterior solutions of Einstein equations were found which can also be used to describe exterior gravitational field of non-rotating and rotating white dwarfs. Furthermore, equilibrium configurations of non-rotating and uniformly rotating of white dwarfs at zero and finite temperatures have been theoretically studied in more detail. The main equations of stellar structure in hydrostatic equilibrium have been solved numerically employing corresponding equation of state, taking into account the effects of general relativity, finite temperature, nuclear composition and rotation. The result of the investigation has shown the significance and importance of these effects. All relevant outcomes were compared and contrasted with observational data from Sloan Digital Sky Survey Data Releases.

According to the results of the PhD thesis several papers were published in peer-reviewed international journals with non-zero impact factor indexed in Scopus and Thomson Reuters data base and in journals recommended by the Control Committee of Education and Science of the Ministry of Education and Science of the Republic of Kazakhstan and in the proceedings of international scientific conferences. All these publications of Zhami B. are listed in the publication list show the novelty and significance of the research work done in the PhD thesis. Thus, the author has fulfilled all the requirements with respect to publications for the PhD degree.

As a scientific adviser, I confirm that the PhD thesis of Zhami Bakytzhan 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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