

Problems of Gravitational Waves and Origin of Gravitational Fields Raised by Studies on Binary Black Hole

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1.INTRODUCTION

As results of a study on the observations and analyses of the decameter radio wave pulses from the center of our Galaxy, it has been concluded that the super massive objects at the center of our Galaxy consist of two black holes which are forming a binary system rotating with common period of 2200sec; two black holes called Gaa and Gab, here, are associated with spin with rotation periods of 176.4 ± 1.7 sec and 148.6 ± 1.0 sec with orbiting velocities 18% and 21% of the light velocity, respectively. The radius of the orbits of Gaa and Gab are 0.13 AU and 0.15 AU ; applying Newtonian dynamics with assumption of coincidence of the orbital plane surfaces with the observing direction, it has been concluded that Gaa and Gab have masses of $(2.27 \pm 0.06) \times 10^6$ SM and $1.94 \pm 0.03 \times 10^6$ SM with unit of solar mass (SM).

2.THE THEORETICAL INVESTIGATION OF THE GRAVITATIONAL WAVE PROPAGATION

Considering the all parameters deduced for the Gaa and Gab binary system, fast reduction of the radii of the orbits of the binary due to emissions of gravitational waves is inevitable in so far as we follow the traditional theory of the generation of the gravitational wave from the black hole. In the present studies, the propagation of wave general across the event horizon have been theoretically investigated using the spacetime of Minkowski which is realized in the frame that is making free fall in the black hole space time. The results has indicated, both for Shwarzschild and Kerr black holes, that the waves are ceased to propagate at the event horizon. Then we concluded that black hole is not able to be origin of the gravitational wave.

3.DISCUSSION AND CONCLUSION

For the LIGO results that reported observations of the gravitational wave from the stellar mass black hole mergers, an alternative interpretation of the possible origin of the merger is the merger of the compact stars which have no event horizon. By the result of our study, the existence of the graviton which is currently assumed as origin of gravitational force meets problem because the graviton is also a wave in the regime of the quantum mechanics. We suggest the necessity of new concept otherwise than graviton hypothesis for origin of the gravitational fields.

Keywords: Black Hole Binary, Galaxy Center, Decameter Radio Wave, gravitational Wave, Origin of Gravitational Field