

## Exact Solution of Geodesic Equation in Schwarzschild Metric and Overall Examination of Physical Laws

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**Abstract :** 106 years have passed since a great number of physicists explained astronomical and physical phenomena by solving geodesic equations in Schwarzschild metric. However, when solving the geodesic equations in Schwarzschild metric, they did not solve correctly one branch of the component of space among spatial and temporal components of four-dimensional force and did not come up with physical laws correctly by means of physical analysis from the results obtained by solving the geodesic equations. In addition to it, they did not treat the astronomical and physical phenomena in a physical way based on the exact physical laws obtained from the solution of the geodesic equations in Schwarzschild metric, so some former scholars mentioned that Einstein's theoretical basis of general theory of relativity was obscure and incorrect, but they have not given a correct physical solution to the problems. Furthermore, because general theory of relativity has not given a quantitative solution to the obscure and incorrect problems, generalization of gravitational theory although the former scholars thought of it and tried to do it. In order to solve the problems it is necessary to explore the obscure and incorrect problems in general theory of relativity based on the physical laws and to find out the methodology of solving the problems. Therefore, first of all, as the first sarytep for achieving the purpose, the correct solution of the geodesic equation in Schwarzschild metric has been presented. Next, the correct physical laws found by making a physical analysis of the results has been presented, the obscure and incorrect problems have been showed and an analysis of them has been made on the basis of the physical laws. In addition, the experimental verification of the physical laws found by us has been made.

**Keywords :** equivalence principle, general relativity, geometrodynamics, Schwarzschild

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