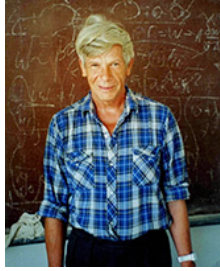


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## Modified geodesic deviation equation in the Kerr metric

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One of the ways to study the space near a black hole is to study the behavior of a test body in its gravitational field. In this paper, we consider the deviation of geodesics, which is physically responsible for the tidal forces acting on a body in the field of a rotating black hole. The modified geodesic deviation equation in the curved space-time of a axially-symmetric Kerr black hole is analyzed. The main difference between the generalized deviation equation and the classical one is that the test particles can be located at any distance from each other, i.e. geodesics are not infinitely close. For simplicity, it was assumed that particles has only a radial component of the 4-velocity. The analysis revealed that, depending on the distance and velocity of relativistic particles, the sign of tidal forces changes only along the radial component of the tidal acceleration vector.

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