



**A TWISTING EINSTEIN-MAXWELL FIELD FEATURING
A ROTATING NON-AXISYMMETRIC
CHARGED BLACK HOLE**

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Abstract

A special non-axisymmetric solution of the Einstein-Maxwell equations is presented, characterized by a spacetime having a multiple null eigenvector of the Weyl tensor forming a geodesic, shearfree and twisting congruence k , and where k is also aligned as an eigenvector of the Maxwell field tensor. The solution is non-radiating and involves an isolated rotating charged constant mass. In an appropriate complex null tetrad the physical and geometric properties of the spacetime are calculated, including the Ricci tensor and the Maxwell tensor which both tend to zero as the parameter r of the k congruence tends to infinity. The spacetime has an event horizon, of more general character than axisymmetric solutions, inside which there is a black hole. In general, the metric is of Petrov type D . The metric contains the axisymmetric Kerr-Newman solution as a special case.

Keywords and phrases: Einstein-Maxwell, twisting rays, rotating, non-axisymmetric black hole.

