

Colliding plane gravitational and fluid waves

-- Colliding gravitational plane waves and Black Hole creation, P



Description: -

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Notes: Thesis (M.Phil.) - Loughborough University of Technology, 1992.

This edition was published in 1992



Filesize: 63.25 MB

Tags: #Colliding #Plane #Waves #in #General #Relativity

THE MATHEMATICAL THEORY OF PLANE GRAVITATIONAL WAVES IN GENERAL RELATIVITY (Journal Article)

This paper is the first of several devoted to almost-plane gravitational waves and their collisions.

THE MATHEMATICAL THEORY OF PLANE GRAVITATIONAL WAVES IN GENERAL RELATIVITY (Journal Article)

In this paper we review some crucial features of the well-known exact solutions for colliding plane waves and we argue that one of these features, the breakdown of "local inextendibility" can be regarded as nongeneric. Solutions which can be joined to the flat Friedmann model through a weak discontinuity and through a shock wave are studied.

Gravitational Waves Could Collide Sucking Earth Into a Black Hole

Normally any such merging of gravitational waves would occur without a problem, with the singularities dissipating quickly. We present here an exact solution of the vacuum Einstein—Maxwell field equations describing the head-on collision of such a wave with a plane gravitational impulse wave.

Gravitational Waves Could Collide Sucking Earth Into a Black Hole

And we hope you, and your loved ones, are staying safe and healthy. The construction of analytic solutions and solutions with weak and strong discontinuities shock waves and contact discontinuities is discussed. COVID-19 has impacted many institutions and organizations around the world, disrupting the progress of research.

Colliding almost

The solution has the Penrose—Khan solution and a solution obtained by Griffiths as separate limiting cases. The possibility of joining the flat Friedmann model to Minkowski space-time through a shock wave of limiting intensity is discussed.

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