

nonlinear and relativistic effects pdf

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The use of the variational methods allows one to calculate the nonlinear wavenumber and radius of the self-focused laser beams. Analytical solutions for the self-trapped radiation and the three-dimensional relativistic solitons are obtained.

Relativistic nonlinear effects in plasmas - ScienceDirect

The question arises as to how the relativistic effects change the nonlinear dynamical behavior described by the classical standard map.

(PDF) Nonlinear dynamics of the relativistic standard map

Bringing together prominent plasma physicists in the United States, this topical conference addresses the most important research problems and trends in applied nonlinear and relativistic effects in plasmas. Nonlinear wave-wave and wave-particle interaction within the plasma lead to a variety of ...

Nonlinear and relativistic effects in plasmas (Conference

S. Devasia. Nonlinear Models for Relativity Effects in Electromagnetism 329 in the perpendicular direction is considered so that the net energy of the apparent fields is independent of the relative velocity. In particular, it is assumed that the

Nonlinear Models for Relativity Effects in Electromagnetism

A nonlinear cold fluid model, valid for ultrahigh intensities, is formulated and used to analyze relativistic harmonic generation. The plasma density response is included self-consistently and is shown to significantly reduce the current driving the harmonic radiation.

Nonlinear Analysis of Relativistic Harmonic Generation

Relativistic effects on the nonlinear propagation of electron plasma waves in dense quantum plasma ... 53 2 $2 \epsilon_i n n x w l w (11)$ where $H k T!Z pe B Fe / 2$ is a nondimensional quantum parameter proportional to the quantum diffraction and

Relativistic effects on the nonlinear propagation of

Abstract: We present the second-order expression for the observed redshift, accounting for all the relativistic effects from the light propagation and from the frame change at the observer and the source positions. We derive the generic gauge-transformation law that any observable quantities should satisfy, and we verify our second-order expression for the observed redshift by explicitly ...

[1805.05959] Non-linear general relativistic effects in

nonlinear systems to conserve certain characteristics invariable under the long action of external forces seems to play a very important role in nature, and must have numerous consequences in relativistic astrophysics and cosmology.

Some nonlinear effects in the relativistic two-body problem

Effects analogous to those studied with conventional nonlinear optics—self-focusing, self-modulation,

harmonic generation, and so on”are all found, but based on this entirely different physical mechanism.

Developments in Relativistic Nonlinear Optics - unl.edu

Nonlinear processes in neutral fluids and plasmas, being fundamental issues in modern physics, have continued their fascination up to the present days. The reason is that the experimentally observed phenomena are related to these nonlinear processes such as coherent structure formation, density patterns.

Relativistic effects on nonlinear lower hybrid

is obtained by combining the nonlinear relativistic gyrokinetic Vlasov equation with the low-frequency Maxwell equations in which charge densities and current densities are expressed in terms of moments of the gyrokinetic Vlasov distribution.

Nonlinear relativistic gyrokinetic Vlasov-Maxwell equations

A nonlinear wave interaction is considered as a technique to increase the rotation sensitivity of the ring laser. The gyroscopic scale factor K is calculated in an active laser gyro with a ...

(PDF) Theory of nonlinear Sagnac effect - ResearchGate

Nonlinear interaction of electromagnetic waves with 3-component relativistic quantum plasma Ikramullah, Rashid Ahmad, Saqib Sharif, and Fida Younus Khattaka) Department of Physics, Kohat University of Science and Technology, Kohat 26000,

Nonlinear interaction of electromagnetic waves with 3

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