On the existence of undistorted progressive waves

On the Existence of Undistorted Progressive Waves
(UPWs) of Arbitrary Speeds $0 \leq v < \infty$ in Nature
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http://arxiv.org/pdf/hep-th/9606171v4.pdf

Introduction

In this paper we present the theory, the experimental evidence, and the fundamental physical consequences concerning the existence of families of undistorted progressive waves (UPWs)($*$) moving with arbitrary speeds($**$) $0 \leq v < \infty$. We show that the main equations of theoretical physics, namely: the scalar homogeneous wave equation (HWE); the Klein-Gordon equation (KGE); the Maxwell equations, the Dirac and Weyl equations have UPWs solutions in a homogeneous medium, including the vacuum. By UPW, following Courant and Hilbert[1] we mean that the UPW waves are distortion free, i.e. they are translationally invariant and thus do not spread, or they reconstruct their original form after a certain period of time.
End