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Dispersive solitary wave solutions of New Coupled Konno-Oono, Higgs field and Maccari equations and their applications

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Abstract: In this research we apply generalized Exp-Function method to obtain exact, solitary and new soliton wave solutions of new coupled Konno-Oono equation, Higgs field equation and Maccari equation via generalized Exp-Function method which are very substantial models in define a current-fed string interacting with an external magnetic field in three-dimensional Euclidean space, introduces quantum field (or the Higgs field) to illustrate the generation mechanism of mass for gauge bosons and described the motion of the isolated waves, localized in a small part of space, in many fields such as hydrodynamic, plasma physics, nonlinear optics and others. generalized Exp-Function method is very sturdy, fabulous, felicitous and effective method to get exact, solitary and new soliton wave solution of nonlinear partial differential equations (PDEs.). We present a contrasting between the results of this modern method and another method and show that how the results that obtained by this method is much closed to cover many different methods in this field and not just that but also get a new solitary and soliton wave solutions which give a wide range of solutions that help all researchers who apply these models in our life.

Keywords: New coupled Konno-Oono equation; Higgs field equation; Maccari equation; Generalized Exp-Function method; Traveling wave solutions; Solitary wave solutions.

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1. Introduction

From the beginning of the universe, there exist many of phenomenal phenomena in different fields in the life for example (Mathematical Physics, Biology, Chemistry, fluid mechanics, hydrodynamics, optics, and plasma physics and so on, but because of ignorance of the causes of these phenomena and do not know even how to occur or how to make use of them. Humanity has been lagging behind in scientific progress. This is the Dark Age continued until the emergence of partial differential equations (PDEs.) which can represent many of these