

**CHARACTERIZATIONS OF CONFORMAL η -EINSTEIN
SOLITONS ON LP-KENMOTSU 3-MANIFOLDS**

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Abstract: In this manuscript, Existence of conformal η -Einstein solitons on LP-Kenmotsu manifold is discussed. We have studied conformal η -Einstein solitons on 3-dimensional LP-Kenmotsu manifold where the Ricci tensors are Coddazi type and cyclic parallel under certain restriction of the Ricci tensor. We have also discussed second order parallel symmetric tensors admitting conformal η -Einstein solitons on 3-dimensional LP-Kenmotsu manifolds. We also use torse-forming vector fields in addition to conformal η -Einstein solitons on 3-dimensional LP-Kenmotsu manifolds. Finally, in 3-dimensional LP-Kenmotsu manifold, we have a non-trivial example.

Keywords and Phrases: Conformal η -Einstein solitons, LP-Kenmotsu manifold, codazzi type Ricci tensor, Second order parallel symmetric tensors.

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1. Introduction

The concept of Lorentzian para-Sasakian manifold (LP-Sasakian manifold) are introduced by K. Motsumoto [10]. Mihai and Rosca [12] defined the equivalent