

**STUDY ON LORENTZIAN PARA-KENMOSTU MANIFOLDS
ADMITTING GENERALIZED TANAKA-WEBSTER
CONNECTION**

Shyam Kishor and Shivam Mishra

Department of Mathematics and Astronomy,
University of Lucknow,
Lucknow - 226007, Uttar Pradesh, INDIA

E-mail : skishormath@gmail.com, shivamsm31897@gmail.com

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Abstract: In this study, we analyze the curvature properties and Ricci solitons in Lorentzian para-Kenmotsu manifolds using the generalized Tanaka-Webster connection. Here, using a generalized Tanaka-Webster connection, we examine the recurring conditions of the Lorentzian para-Kenmotsu manifold, projective curvature tensor, and conharmonic curvature tensor. Furthermore, using a generalized Tanaka-Webster connection, we investigate Ricci solitons on Lorentzian para-Kenmotsu manifolds.

Keywords and Phrases: Lorentzian para-Kenmotsu Manifold, Generalized Tanaka - Webster connection, ϕ -recurrent, Ricci-solitons.

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1. Introduction, Notations and Definitions

On a non-degenerate pseudo-Hermitian CR-manifold, the Tanaka-Webster connection is a canonical affine connection [18, 21]. For contact metric manifolds, Tanno [19] defined the generalized Tanaka-Webster connection via the canonical connection, which is equivalent to the Tanaka-Webster connection provided that the corresponding CR-structure is integrable. Numerous writers have recently examined the generalized Tanaka-Webster link in Kenmotsu manifolds [5, 13, 15].