

**A NEW TYPE OF LORENTZIAN TRANS-SASAKIAN
MANIFOLDS ADMITTING SEMI-SYMMETRIC
NON-METRIC CONNECTION**

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Abstract: This research paper delves into the investigation of trans-Sasakian structures that accommodate a semi-symmetric non-metric connection on a manifold with a Lorentzian metric. Many significant results have been derived on such manifolds. The paper also explores conformally flat Lorentzian trans-Sasakian manifolds that admit semi-symmetric non-metric connections. Furthermore, explicit formulas for the curvature tensor, Ricci tensor, and Ricci operator are derived for three-dimensional Lorentzian trans-Sasakian manifolds with semi-symmetric non-metric connections.

Keywords and Phrases: η -Einstein manifold, conformally flat manifold,