On Harmonic Curvatures of Null Curves of the AW\((k)\)-Type in Lorentzian Space

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We investigate null curves of the AW\((k)\)-type \((1 \leq k \leq 3)\) in the 3-dimensional Lorentzian space, \(L^3\), and give curvature conditions of these curves by using the Cartan frame. Moreover, we study harmonic curvatures of curves of AW\((k)\)-type and show that if the \(\alpha\) Frenet curve is of type AW\((1)\), then \(\alpha\) is a null helix.

Key words: Null Curve; Harmonic Curvature; Frenet Formulas; AW\((k)\)-Type Curve.