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On involute and evolute curves of spacelike curve with a spacelike principal normal in Minkowski 3-space. (English) Zbl 1192.53002

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Summary: We generalize the notion of involute and evolute of the space-like curve α with a space-like principal normal in Minkowski 3-space. Firstly, we show that, the length between the space-like curves α and β is constant. Furthermore, the Frenet frame of the involute curve β is found as depending on the curvatures of the curve α . We have determined conditions under which the curve α is planar. Secondly, we find the transformation matrix between the evolute curve β and the curve α . Finally, we compute the curvatures of the evolute curve β .

MSC:

53A04 Curves in Euclidean and related spaces

53B30 Local differential geometry of Lorentz metrics, indefinite metrics

53A35 Non-Euclidean differential geometry

Cited in **2** Documents

Keywords:

space-like curve; involutes; evolutes; Minkowski 3-space