

On the Sectional Curvatures of the Time Like Generalized Ruled Surface in IR_1^n

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Abstract

Analysis of curvature is an important study field in the realm of differential geometry because the theory of curvature has been used by various branches of sciences. A well-known formula from classical surface theory is Euler formula, which is a relationship between the normal curvature and principal curvatures.

Beltrami formula was given for curvatures of plane sections by W., Blaschke. Moreover, Euler formula was applied to the plane sections by H., Frank, O., Giering and called as Beltrami-Euler formula, which is a relationship between the normal curvature and the principal normal curvatures of the plane sections of the generalized ruled surface with the central ruled surface in n -dimensional Euclid space, E^n .

In this paper, the sectional curvature of non-degenerate plane sections of time-like ruled surface with the central ruled surface in n -dimensional Minkowski space, IR_1^n is studied. The relationship between normal sectional curvature and the principal sectional curvatures of non-degenerate plane sections of time-like ruled surfaces is obtained and called as Lorentzian Beltrami-Euler formula.

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Key Words: Sectional curvature, time-like ruled surface, Minkowski space.

¹The poster will be presented by the second author (Murat TOSUN)