

# Minding isometries of $B$ -scrolls in Minkowski space

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Ruled surfaces in 3-dimensional Minkowski space  $\mathbb{R}_1^3$  are surfaces that admit parametrization of the form

$$f(u, v) = c(u) + ve(u), u \in I \subset \mathbf{R}, v \in \mathbf{R}, \quad (1)$$

where  $c$  is the base curve and the  $e(u)$  is a non-vanishing vector field along  $c$  which generates the rulings. Ruled surfaces in  $\mathbb{R}_1^3$  are classified with respect to the causal character of their base curve and their rulings (spacelike, timelike and null (lightlike, isotropic)). Among surfaces with null rulings, so called class  $M_0$ ,  $B$ -scrolls of null Frenet curves are of special interest. In this work we study local isometries of ruled surfaces that preserve rulings, so called the Minding isometries. We investigate conditions on invariants of  $B$ -scrolls to obtain such isometries and show that if two  $B$ -scrolls are locally isometric, then the local isometry preserves their rulings, unless they are  $B$ -scrolls with constant Gaussian curvature.

## References

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