

Translation and homothetical surfaces in Lorentzian space with constant curvature

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ABSTRACT

In Lorentz-Minkowski space E_1^3 a surface is said to be homothetical if it is the graph of the product of two functions, namely, $z = f(x)g(y)$, where (x, y, z) are the standard coordinates of E_1^3 . These surfaces were introduced in [3] in the problem of finding all minimal homothetical surfaces in E_1^3 . In this talk we consider the problem of finding all non-degenerate (spacelike or timelike) homothetical surfaces with constant Gaussian curvature K . First, we prove that K must be zero ([1]). Then for $K = 0$, we give a complete description of the parametrizations of such surfaces. Then we also give a new proof that planes and helicoids are the only minimal homothetical surfaces in E_1^3 ([2]). Finally, the corresponding problem is treated in Euclidean space. This is a joint work with Rafael López (University of Granada).

References

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