

Non-null Helicoidal Surfaces as Non-null Bonnet Surface

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In this paper, non-null helicoidal surfaces defined by [8], [9] and timelike Bonnet surfaces classified by [10] are taken into consideration and it is shown that the non-null helicoidal surfaces in Lorentzian space forms which admit one-parameter family of isometric deformation preserving the mean curvature are non-null bonnet surfaces.

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References

- [1] A. Fujioka, J. Inoguchi, Timelike Bonnet surfaces in Lorentz space forms, *Differential Geom. Appl.*, **18** (2003), 103–111.
- [2] A. Fujioka, J. Inoguchi, Spacelike surfaces with harmonic inverse mean curvature, *J. Math. Sci. Univ. Tokyo*, **7** (2000), 657–698.
- [3] B. O’Neill, *Semi-Riemannian Geometry*, Academic Press, New York, 1983.
- [4] J. Park, Lorentzian surfaces with constant curvatures and transformations in the 3-dimensional Lorentzian space, *J. Korean Math. Soc.*, **45** (2008), 41–61.
- [5] H. S. Kim, Y. Kim, A certain complete space-like hypersurface in Lorentz manifolds, *Balkan J. Geom. Appl.*, **9** (2004), 32–43.
- [6] I. M. Roussos, The helicoidal surfaces as Bonnet surfaces, *Tohoku Math. J.*, **40** (1988), 485–490.
- [7] L. J. Alias, A. Ferrandez, P. Lucas, Surfaces in the 3-dimensional Lorentz-Minkowski space satisfying, *Pacific J. Math.*, **156** (1992), 201–208.
- [8] P. Ira, J. A. Pastor, Helicoidal maximal surfaces in Lorentz-Minkowski space, *Monatsh. Math.*, **140** (2003), 315–334.
- [9] R. Lopez, E. Demir, Helicoidal surfaces in Minkowski space with constant mean curvature and constant Gauss curvature, 2010, arXiv:1006.2345v2.
- [10] W. Chen, H. Li, *On the classification of the timelike Bonnet surfaces*, in: *Geometry and Topology of Submanifolds*, 10, Chern, S. Chen, W., Shelton Street, Covent Garden, London, 18–31.
- [11] W. Chen, H. Li, Bonnet surfaces an isothermic surfaces, *Result. Math.*, **31**(1997), 40–52.