

# Elastica Constrained Problem in Hypersurfaces of Lorentzian Space Forms

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## ABSTRACT

*A curve immersed in a pseudo-Riemannian manifold is called an elastic curve if it is a critical point of the bending energy [1].*

*The purpose of this talk is to study geodesics of hypersurfaces in a Lorentzian space form which are critical curves for the bending energy, but for variations constrained to lie on the hypersurface, the elastica constrained problem [3], [5].*

*First, the classification into three different types of critical geodesics for the constrained problem will be presented, in terms of their Frenet curvatures [2].*

*Finally, restricting ourselves to the flat Minkowski space  $\mathbb{L}^3$ , surfaces which are foliated by critical geodesics of each type will be studied (and classified in two of these cases) [2]. Special emphasis will be put in the warped product metric of Hashimoto surfaces [4], which are foliated by critical geodesics of the third type [2].*

## References

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