Kinematic geometry of pseudo-spherical evolutes

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In this study, we define pseudo-spherical evolutes corresponding to the trajectory of a point in spherical kinematics. Also, we obtain general expressions for the curvature properties of the *n*th pesudo-spherical evolute in terms of the geodesic curvature and the derivative of the geodesic curvature for the (n - 1)th pseudo-spherical evolute.

References

- Schaaf, J. A. and Yang, A. T., *Kinematic geometry of spherical evolutes*, J. Mech. Des. 114 (1) (1992), 109–116.
- [2] Sato, T., Pseudo-spherical evolutes of curves on a spacelike surface in three dimensional Lorentz–Minkowski space, J. Geom. 103 (2012), 319–331.
- [3] Chiang, C.H., *Kinematics of spherical mechanisms*, Cambridge University Press, Cambridge, England, 1988.