

Accepted Manuscript

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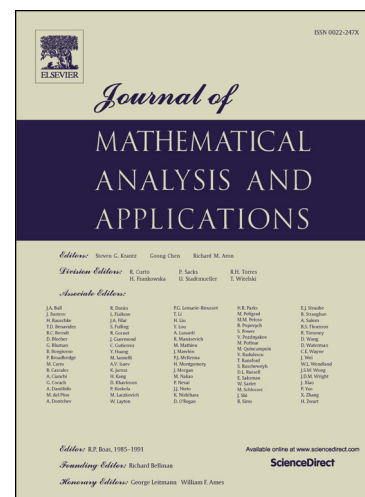
PII: S0022-247X(17)31112-5
DOI: <https://doi.org/10.1016/j.jmaa.2017.12.034>
Reference: YJMAA 21895

To appear in: *Journal of Mathematical Analysis and Applications*

Received date: 7 April 2017

Please cite this article in press as: G. Li, Y. Lv, Flow of pinched convex hypersurfaces by powers of curvature functions in Hyperbolic space, *J. Math. Anal. Appl.* (2018), <https://doi.org/10.1016/j.jmaa.2017.12.034>

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Flow of pinched convex hypersurfaces by powers of curvature functions in Hyperbolic space[☆]

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Abstract

This paper concerns closed, h -convex hypersurfaces of dimension $n \geq 2$ in the hyperbolic space \mathbb{H}_κ^{n+1} of constant sectional curvature κ evolving in direction of its normal vector, where the speed equals a power $\beta > 1$ of a curvature function F , which is monotone, symmetric, homogeneous of degree 1. It is shown that if the initial h -convex hypersurface is pinched, then this is maintained under the flow, and the hypersurfaces shrink to a round point in \mathbb{H}_κ^{n+1} in finite time. As a consequence, when rescaling appropriately, the evolving hypersurfaces converge smoothly and exponentially to the unit sphere of \mathbb{R}^{n+1} .

Keywords: curvature flow, h -convex hypersurface, hyperbolic space

2010 MSC: 53C44, 35K55

1. Introduction

This paper consider the following problem. Let M^n be a smooth, compact oriented Riemannian manifold of dimension $n(\geq 2)$ without boundary, (N^{n+1}, \bar{g}) be an $(n+1)$ -dimensional complete Riemannian manifold, and $X_0 : M^n \rightarrow N^{n+1}$ a smooth immersion. We consider a one-parameter family of smooth immersions

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