Applications of a distance comparison principle and pinching assumptions to some inverse curvature flows

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Recently Andrews and Bryan discovered a comparison function which allows them to shorten the classical proof of the well-known fact that the curve shortening flow shrinks embedded closed curves in the plane to a round point. Using this comparison function they estimate the length of any chord from below in terms of the arc length between its endpoints and elapsed time. They apply this estimate to short segments and deduce directly that the maximum curvature decays exponentially to the curvature of a circle with the same length. We consider the expansion of closed convex curves under inverse (mean) curvature flow and show that the above comparison function also works in this case to obtain a new proof of the fact that the flow exists for all times and becomes round in shape, i.e. converges smoothly to the unit circle after an appropriate rescaling.
Furthermore, we prove convergence results for expanding curvature flows of closed hypersurfaces by high powers of the mean curvature in the Euclidean and hyperbolic space under a certain pinching assumption for the initial hypersurfaces.