

Stability and eigenvalue estimates for CMC surfaces in warped products

Abstract: Constant mean curvature surfaces (CMC) are characterized as critical points of the area functional restricted to those variations which preserve certain volume function. For such critical points the stability is given by the Jacobi operator J , then a surface is said to be stable if the first eigenvalue associated to the mentioned operator is non negative.

Our aim is the search for estimates for the first eigenvalue of the Jacobi operator of compact CMC surfaces immersed into three-dimensional warped products. We also characterize the cases when the upper bound is reached. As an application, we derive some consequences for those surfaces that are stable, obtaining some classification results.

This is a joint work with Miguel A. Meroño.