

The geometry of constant mean curvature surfaces in Euclidean space

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Abstract

I will begin by reviewing classical geometric properties of constant mean curvature surfaces, $H > 0$, in \mathbb{R}^3 . I will then talk about several more recent results for surfaces embedded in \mathbb{R}^3 with constant mean curvature, such as curvature and radius estimates for simply-connected surfaces embedded in \mathbb{R}^3 with constant mean curvature. Finally I will show applications of such estimates including a characterisation of the round sphere as the only simply-connected surface embedded in \mathbb{R}^3 with constant mean curvature and area estimates for compact surfaces embedded in a flat torus with constant mean curvature and finite genus. This is joint work with Meeks.

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