# Curvature, area and radius estimates for $H$-surfaces in Riemannian 3-manifolds 

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## Resumo/Abstract:

This is a course on the geometry of surfaces of constant mean curvature $H \geq 0$ in Riemannian 3-manifolds; these special surfaces are called $H$-surfaces. The first material covered concerns joint work of the first author with Giuseppe Tinaglia, which includes the existence of curvature and radius estimates for $(H>0)$-disks embedded in $R^{3}$, with one of the main results being that a complete simply connected $(H>0)$-surface embedded in $R^{3}$ is a round sphere. The second material covered concerns joint work of the first author with Pablo Mira, Joaquin Perez and Antonio Ros of the classification of $H$-spheres in any homogenous 3 -manifold $X$, with one of the main results being that two $H$-spheres in $X$ with the same mean curvature differ by an isometry of $X$.

Pré-requisitos: The only prerequisite is a familiarity with basic surface geometry in $R^{3}$ and the beginning theory of Riemannian manifolds. Therefore, graduate students who have taken a graduate level course in Differential Geometry should be sufficiently prepared for the lectures.

