

Relatives of Flat Surfaces in \mathbb{H}^3

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Abstract

In recent years there has been major progress in the classical theory of surfaces in Affine Differential Geometry. Here we will review some of the geometric properties and technical tools that have been useful in studying the family of locally convex surfaces (possibly with singularities) in Euclidean 3-space \mathbb{R}^3 with parallel affine normal lines. This kind of surface keeps an intimate relation to flat surfaces in hyperbolic 3-space \mathbb{H}^3 and they are connected with special lagrangian immersions in complex Euclidean plane \mathbb{C}^2 and minimal surfaces in \mathbb{R}^3 . Although these surfaces are not so well known as minimal surfaces in \mathbb{R}^3 their local connection to them has oriented their study.

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