

Bour Surface Companions in Space Forms *

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ABSTRACT

Minimal surfaces in Euclidean 3-space \mathbb{R}^3 which are isometric to surfaces of revolution were first introduced by Edmond Bour, and they are explicitly described by the Weierstrass representation. Such minimal surfaces are called Bour's minimal surfaces. On the other hand, there are several Weierstrass-type representations for surfaces in other space forms. So it is natural to consider Bour-type surfaces in other 3-dimensional space forms.

In this talk, we present Bour-type surfaces in 3-dimensional space forms (\mathbb{R}^3 , Minkowski 3-space $\mathbb{R}^{2,1}$, hyperbolic 3-space \mathbb{H}^3 and de Sitter 3-space $\mathbb{S}^{2,1}$). First we introduce the original Bour's minimal in \mathbb{R}^3 , and using Weierstrass-type representations, we give explicit parametrizations for Bour-type surfaces in other 3-dimensional space forms. Finally, we introduce several properties of Bour-type surfaces.

*This talk is partly based on the joint work with Shotaro Konnai (Kobe University).