

# Meridian Surfaces in Minkowski 4-Space

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## ABSTRACT

Basic source of examples of surfaces in 4-dimensional Euclidean or pseudo-Euclidean spaces are the standard rotational surfaces and the general rotational surfaces (in the sense of C. Moore). In Euclidean space we constructed another class of surfaces of rotational type which are one-parameter system of meridians of a rotational hypersurface and called them meridian surfaces.

Similarly to the Euclidean case, we introduce meridian surfaces in the Minkowski 4-space  $\mathbb{R}_1^4$ . According to the fact that there are three types of rotational hypersurfaces in  $\mathbb{R}_1^4$ , namely rotational hypersurface with timelike, spacelike, or lightlike axis, we construct three types of meridian surfaces: of elliptic, hyperbolic, or parabolic type, respectively.

On the base of our invariant theory of surfaces we study meridian surfaces with special invariants and give the complete classification of the meridian surfaces with constant Gauss curvature or constant mean curvature. We also classify the Chen meridian surfaces and the meridian surfaces with parallel normal bundle.