

Ribaucour surfaces of harmonic type

Armando M. V. Corro. Carlos M. C. Riveros e Karoline V. Fernandes

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We introduce the class of Ribaucour surfaces of harmonic type (in short HR-surfaces) that generalizes the Ribaucour surfaces related to a problem posed by ´Elie Cartan. We obtain a Weierstrass-type representation for these surfaces which depends on three holomorphic functions. As application, we classify the HR-surfaces of rotation, present examples of complete HR-surfaces of rotation with at most two isolated singularities and an example of a complete HR-surface of rotation with one catenoid type end and one planar end. Also, we present a 5-parameter family of cyclic HR-surfaces foliated by circles in non-parallel planes. Moreover, we classify the isothermic HR-surfaces with planar lines of curvature.