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Compact singular minimal surfaces with boundary. (English) Zbl 1464.53011 Am. J. Math. 142, No. 6, 1771-1795 (2020).

Summary: We study the shape of a compact singular minimal surface in terms of the geometry of its boundary, asking what type of a priori information can be obtained on the surface from the knowledge of its boundary. We derive estimates of the area and the height in terms of the boundary. In case that the boundary is a circle, we study under what conditions the surface is rotational. Finally, we deduce non-existence results when the boundary is formed by two curves that are sufficiently far apart.

MSC:
53A10 Minimal surfaces in differential geometry, surfaces with prescribed mean curvature
49Q05 Minimal surfaces and optimization

Keywords:
singular minimal surfaces

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