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Two Codazzi problems for relative surfaces. (English) Zbl 1015.53003

The subject of this thesis is the classification of surfaces, sometimes hypersurfaces, with a general relative normalization under special assumptions. The first Codazzi property (chapter 2) stands for projectively flat induced connection. Special results are given for the Blaschke normalization, for isoparametric surfaces, and for constant mean curvature and the Pick invariant. The characterized surfaces are relative spheres, ruled surfaces, and of more special type. The second Codazzi property (chapter 3) means the relative Chebyshev property, a concept first introduced in centro-affine surface theory. Here a new class of special ruled surfaces is found among others. Chapter 4 treats analogous problems for translation surfaces and hypersurfaces. For instance, it is shown that there are projectively flat translation surfaces which are not locally symmetric.

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