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A generalization of Clairaut's theorem and umbilic foliations

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1. Introduction

In differential geometry, behavior of geodesics in a Riemannian manifold is an interesting theme. One of famous and classical results in this direction is Clairaut's theorem on surfaces of revolution. R. L. Bishop[1] defined a Clairaut submersion and obtained a generalization of Clairaut's theorem. The total space of a submersion with connected fibers is considered as a foliated manifold. In this note, we consider Riemannian manifolds with umbilic foliations([2]) and discuss the behavior of geodesics in such manifolds. Our result is a generalization of Clairaut's theorem. We also give some examples of umbilic foliations. We shall be in C^{∞}-category.

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