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On special types of minimal and totally geodesic unit vector fields. (English) [Zbl 1095.53026](#)
Mladenov, Ivaïlo (ed.) et al., Proceedings of the 7th international conference on geometry, integrability and quantization, Sts. Constantine and Elena, Bulgaria, June 2–10, 2005. Sofia: Bulgarian Academy of Sciences (ISBN 954-8495-30-9/pbk). 292-306 (2006).

Summary: We present a new equation with respect to a unit vector field on a Riemannian manifold M^n such that its solution defines a totally geodesic submanifold in the unit tangent bundle with Sasakian metric and apply it to some classes of unit vector fields. We introduce a class of covariantly normal unit vector fields and prove that within this class the Hopf vector field is a unique global one with totally geodesic property. For the wider class of geodesic unit vector fields on a sphere we give a new necessary and sufficient condition to generate a totally geodesic submanifold in T_1S^n .

For the entire collection see [\[Zbl 1089.53004\]](#).

MSC:

- [53C20](#) Global Riemannian geometry, including pinching
- [53C25](#) Special Riemannian manifolds (Einstein, Sasakian, etc.)
- [53C43](#) Differential geometric aspects of harmonic maps

Cited in **2** Documents

Keywords:

totally geodesic submanifold; Hopf vector field

Full Text: [arXiv](#)