

**De, U. C.; Guha, N.; Kamilya, D.**

**On generalized Ricci-recurrent manifolds.** (English) Zbl 0859.53009

Tensor, New Ser. 56, No. 3, 312-317 (1995).

The authors propose a new generalization of the notion of a Ricci-recurrent manifold  $R_n$  introduced in 1952 by E. M. Patterson. Their generalized Ricci-recurrent manifold  $GR_n$  is a nonflat Riemannian manifold which possesses a pair of nonzero 1-forms: a recurrence 1-form  $A$  and an associated 1-form  $B$ . When  $B = 0$ , then  $GR_n$  reduces to a  $R_n$ . A different notion of a generalized Ricci-recurrent manifold  $GK_n$  was proposed by the first two authors in 1991 (apparently not yet published). It reduces to the original H. S. Ruse and A. G. Walker definition of recurrent manifolds  $K_n$  when  $B = 0$ .

The goal of the current investigation is to study the new notion of a generalized Ricci-recurrent manifold and ascertain when a  $GR_n$  reduces to a  $GK_n$ . Ultimately the issue is to determine whether the appropriate generalization of Ricci-recurrent manifolds should be closer to the Ricci-recurrent manifolds of Patterson, or the recurrent manifolds of Ruse and Walker. Contents include: an introduction; preliminaries; existence of a  $GR_n$  ( $n \geq 2$ ); the 1-forms  $A$  and  $B$ ;  $GR_n$  with constant scalar curvature; conformally flat  $GR_n$  with constant scalar curvature; and a necessary and sufficient condition for a  $GR_n$  to be a  $GK_n$ .

Reviewer: [J.D.Zund \(Las Cruces\)](#)

**MSC:**

[53B20](#) Local Riemannian geometry

Cited in **1** Review  
Cited in **26** Documents

**Keywords:**

[recurrent manifold](#); [generalized Ricci-recurrent manifold](#)