On the parallel transport of the Ricci curvatures

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Abstract:

Geometrical characterizations are given for the tensor $R \cdot S$, whereby S is the *Ricci tensor* of a (semi-)Riemannian manifold (M, g) and R denotes the *curvature operator* acting on S as a derivation, and of the *Ricci Tachibana tensor* $\wedge_g \cdot S$, whereby the natural *metrical operator* $\wedge_g$ also acts as a derivation on S. As a combination, the *Ricci curvatures* associated with directions on M, of which the isotropy determines that M is *Einstein*, are extended to the *Ricci curvatures of Deszcz* associated with directions and planes on M, and of which the isotropy determines that M is *Ricci pseudo-symmetric in the sense of Deszcz*.