Year: 2009 **Vol.: 74** **Fasc.: 3-4**

Title: On the Weyl curvature of Deszcz

Author(s): Bilkis Jahanara, Stefan Haesen, Miroslava Petrović-Torgašev and Leopold Verstraelen

Geometrical characterizations are given for the $(0,6)$-tensor $R \cdot C$ and the $(0,6)$ Tachibana–Weyl tensor $Q(g,C) := - \wedge_g \cdot C$, whereby C denotes the $(0,4)$ Weyl conformal curvature tensor of a Riemannian manifold (M,g), R denotes the curvature operator acting on C as a derivation, and where the natural metrical endomorphism $\wedge_g$ also acts as a derivation on C. By comparison of these $(0,6)$-tensors $R \cdot C$ and $Q(g,C)$, a new scalar valued Riemannian curvature invariant $L_C(p,\pi,\overline{\pi})$ is determined on (M,g), called the Weyl curvature of Deszcz, which in general depends on two tangent 2-planes π and $\overline{\pi}$ at the same point p, and of which the isotropy determines that M is Weyl pseudo-symmetric in the sense of Deszcz.

Address:
Bilkis Jahanara
Department of Mathematics
Katholieke Universiteit Leuven
Celestijnenlaan 200B bus 2400
3001 Leuven
Belgium

Address:
Stefan Haesen
Department of Mathematics
Katholieke Universiteit Leuven
Celestijnenlaan 200B bus 2400
3001 Leuven
Belgium

Address:
Miroslava Petrović-Torgašev
Department of Mathematics and Informatics
University of Kragujevac, Faculty of Science
Radoja Domanovića 12
34000 Kragujevac
Serbia

Address:
Leopold Verstraelen
Department of Mathematics
Katholieke Universiteit Leuven
Celestijnenlaan 200B bus 2400
3001 Leuven
Belgium