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On invariant operations on pseudo-Riemannian manifolds

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Abstract: Invariant polynomial operators on Riemannian manifolds are well understood and the knowledge of full lists of them becomes an effective tool in Riemannian geometry, [Atiyah, Bott, Patodi, 73] is a very good example. The present short paper is in fact a continuation of [Slovák, 92] where the classification problem is reconsidered under very mild assumptions and still complete classification results are derived even in some non-linear situations. Therefore, we neither repeat the detailed exposition of the whole setting and the technical tools, nor we include all details of the proofs, the interested reader can find them in the above paper (or in the monograph [Kolář, Michor, Slovák]).

After a short introduction, we study operators homogeneous in weight on oriented pseudo-Riemannian manifolds. In particular, we are interested in those of weight zero. The results involve generalizations of some well known theorems by [Gilkey, 75] and [Stredder, 75].

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