Akivis, M. A.; Goldberg, V. V.
On the theory of almost Grassmann structures. (English) Zbl 0940.53021
Szenthe, J. (ed.), New developments in differential geometry, Budapest 1996. Proceedings of the conference, Budapest, Hungary, July 27-30, 1996. Dordrecht: Kluwer Academic Publishers. 1-37 (1999).

Let $M$ be a differentiable manifold of dimension $n = pq$ and let $SC(p, q)$ be a differentiable fibration of Segre cones with the base $M$ such that the cone $SC_x(p, q)$ is contained in the tangent space $T_xM$, $x \in M$. The pair $(M, SC(p, q))$ is called an almost Grassmann structure and denoted by $AG(p-1, p+q-1)$.

Manifolds endowed with such a structure are called almost Grassmann manifolds and were introduced by T. Hangan [Rev. Roum. Math. Pures Appl. 11, 519-531 (1966; Zbl 0163.43402)].

In the present paper, the authors develop the real theory of almost Grassmann structures $AG(p-1, p+q-1)$ obtaining their structure equations and finding (in a fourth-order differential neighbourhood) a complete geometric object which defines their geometric structure and the structure group of these structures, together with its differential prolongation. Moreover, they find the conditions on an almost Grassmann structure to be locally flat or locally semiflat.

For the entire collection see [Zbl 0903.00045].

Reviewer: Sergio Console (Torino)

MSC:

53C15 General geometric structures on manifolds (almost complex, almost product structures, etc.)
53C10 $G$-structures
53A55 Differential invariants (local theory), geometric objects

Keywords:

almost Grassmann structure; Segre cones; almost Grassmann manifolds; complete geometric object; structure group

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