

Pseudo-Riemannian Weakly Symmetric Manifolds

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There is a well developed theory of weakly symmetric Riemannian manifolds. Here it is shown that several results in the Riemannian case are also valid for weakly symmetric pseudo-Riemannian manifolds, but some require additional hypotheses. The topics discussed are homogeneity, geodesic completeness, the geodesic orbit property, weak symmetries, and the structure of the nilradical of the isometry group. Also, we give a number of examples of weakly symmetric pseudo-Riemannian manifolds, some mirroring the Riemannian case and some indicating the problems in extending Riemannian results to weakly symmetric pseudo-Riemannian spaces.

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