Fedosov Homogeneous Structures

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A cornerstone for the study of Riemannian homogeneous and locally homogeneous manifolds was laid by W. Ambrose and I. M. Singer in 1958, when they proved the equivalence between homogeneity and the existence of a tensor (homogeneous structure) satisfying certain geometric partial differential equations. We generalized this result to reductive homogeneous spaces equipped with some geometric structure, non necessarily pseudo-Riemannian. The applications of this result in a non-metric framework shape an ambitious project. We start this program in the case of (almost) symplectic manifolds. Furthermore, if the manifold is Fedosov (it has a symplectic background connection) the classication is given for the homogeneous structure tensors.

This is joint work with M. Castrillón López.