

Title: Projectively Osserman manifolds

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One says that a smooth manifold M of dimension m is a pseudo-Riemannian manifold of signature (p, q) if the tangent bundle TM is equipped with a smooth non-degenerate symmetric inner product g of signature (p, q) where $p + q = m$. Similarly one says that M is an affine manifold if TM is equipped with a torsion free connection ∇ . One says g is Osserman if the eigenvalues of the Jacobi operator are constant on the pseudo-sphere bundles of unit timelike and spacelike vectors. We extend this concept from the pseudo-Riemannian to the affine setting to define the notion of a projectively Osserman manifold. This notion is the focus of the paper. We establish some basic results concerning projectively Osserman manifolds and exhibit examples of this structure which arise in several different geometrical contexts.

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