

Vicente Cortes (Universität Hamburg):
Holonomy of pseudo-Riemannian cones

Abstract: We consider metric cones over pseudo-Riemannian manifolds. It is shown how explicit geometric information about the base manifold can be obtained from rather general properties of the holonomy representation of the cone. For instance, we give a general structure result for cones with decomposable holonomy and more specific results under various global assumptions. In particular we prove a generalisation of Gallot's theorem, which states that the Riemannian cone over a simply connected complete Riemannian manifold is decomposable if and only if the base manifold is the standard sphere and the cone is flat. In the case of indecomposable but reducible holonomy we specialise to the two extremal cases: the Lorentzian case and the case of split signature.

This is joint work with Dmitri Alekseevsky, Anton Galaev and Thomas Leistner.