

Simple Lie groups and pseudo-Riemannian manifolds

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Abstract

Let G be a connected noncompact simple Lie group acting by isometries on a compact pseudoRiemannian manifold M . Such an M can be thought as a geometric manifold with a large group of symmetries and rich dynamics. An example of such actions is given by considering a connected semisimple Lie group H containing G , an irreducible lattice Γ and a compact subgroup K in the centralizer of G in H ; then the double coset $K \backslash H / \Gamma$ admits a left G -action preserving the pseudoRiemannian structure coming from the Killing form of H . Zimmer's program proposes to determine to what extent a general G -action on some M as above can be related to the double cosets just described. In this talk we will present some results that prove that (up to a finite covering) some of such manifolds are in fact double cosets as above.