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Complete flat manifolds

The aim of the talk is to discuss some properties of complete flat manifolds (cf-manifolds). Each such a manifold M is a flat vector bundle over a closed flat manifold X_M, in particular, the homotopy type of M is determined by $\pi_1(M)$. The following topics will be discussed during the talk:

1) the results concerning finiteness of the set of diffeomorphism classes of cf-manifolds of a fixed dimension m,

2) an algebraic criterion of an affine equivalence,

3) topological structure of cf-manifolds with cyclic holonomy groups,

4) topological and affine classification of m-dimensional cf-manifolds ($m \leq 4$),

5) immersions of cf-manifolds into Euclidean spaces.

For the formulation of most of the results we refer to M. Sadowski, *Topological and affine structure of complete flat manifolds*, preprint, arXiv: math /DG/ 0502449