

Equivariant triangulations of G -manifolds when G is a group with the discrete topology.

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We consider the question whether a C^r differentiable G -manifold has an equivariant C^r triangulation, when G is a topological group with the discrete topology. We cover the smooth case ($1 \leq r \leq \infty$) and the real analytic case ($r = \omega$).

It turns out that the answer is "yes" if the action of G is properly discontinuous. We discuss techniques needed in proving this result.

We also show that proper discontinuity is an almost necessary condition (that is, a necessary condition, in the case in which the manifold is connected and the action is effective) for the existence of the triangulation.