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The equivariant homotopy type of G-ANR's for compact group actions

We discuss the following question in the theory of transformation groups: Which G-spaces have the G-homotopy type of a G-CW complex?

In the classical setting (without a group action) it is known that regarding homotopy type, the concepts ANR, polyhedron and CW complex give the same class of spaces. In particular, any ANR space has the homotopy type of a CW complex.

In a joint work with S. Antonyan we have proved that any G-ANR space has the G-homotopy type of a G-CW complex, when G is an arbitrary compact Hausdorff group, [2].

For proper actions of Lie groups the result has been proved for proper locally linear actions on manifolds, [1]. Our aim is to generalize this for arbitrary locally compact groups G and proper G-ANR spaces.

References

[1] E. Elfving. The G-homotopy type of proper locally linear G-manifolds, II, *Manuscripta Math.* 105 (2001) 235–251.

[2] S. Antonyan, E. Elfving. The equivariant homotopy type of G-ANR's for compact group actions, to appear in *Manuscripta Math.*

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[*]This is a joint work with Sergey Antonyan