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Universal space for free actions of a compact (non Lie) group

Abstract. For a Lie group G such a space coincides with the principal G -bundle $p : EG \rightarrow BG$ in which BG is absolute retract. The interest in the investigation of such an object lies in its connection with classification of other principal G -bundles through homotopy classes of maps of their bases into BG . Beyond the class of compact Lie groups the universal spaces are significant ingredient in many problems, for example in the Hilbert-Smith Conjecture. But here the situation gets more complicated, even the problem of their existence was settled recently.

In the talk we suggest a new easier construction of universal space for free actions of a compact group. Other properties of such spaces will be discussed.