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On the second cohomology group of a simplicial group. (English) Zbl 1203.55011
Homology Homotopy Appl. 12, No. 2, 167-210 (2010).

Eilenberg and Mac Lane have shown that the second cohomology groups of path-connected topological spaces can be expressed in terms of their first two homotopy groups and their first Postnikov invariants. In this paper the author proves the analogous result for simplicial groups, using the theory of crossed module extensions of groups. Since simplicial groups form a model for path-connected spaces, this give a more algebraic proof for the result of Eilenberg and Mac Lane.

Reviewer: [Richard John Steiner \(Glasgow\)](#)

MSC:

[55U10](#) Simplicial sets and complexes in algebraic topology
[18G30](#) Simplicial sets; simplicial objects in a category (MSC2010)
[20J06](#) Cohomology of groups
[55S45](#) Postnikov systems, k -invariants

Keywords:

[simplicial group](#); [crossed module](#)

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