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Homology theory in the AST. II: Basic concepts, Eilenberg-Steenrod's axioms. (English)

Zbl 0761.55004
Commentat. Math. Univ. Carol. 33, No. 2, 353-372 (1992).

In part I [ibid. 32, No. 1, 75-93 (1991; Zbl 0735.03032)], the author developed the algebraic prerequisites needed in the development of the concepts of the present paper. He proceeds by suitably formulating the Eilenberg-Steenrod axioms for the homology theory in Alternative Set Theory and then proves that these axioms are indeed satisfied by his homology theory. In place of the usual admissible category of topological spaces, the author defines the category of generalized symmetries, which are Π-classes with simplicial maps, and then his homology functors have values in abelian groups and homomorphisms. The crucial observation is the fact that the topological phenomena in AST are studied by indiscernibility relations, and after that the appropriate formulations of the axioms yield their proofs quickly with a few side results required here and there in the development.

Reviewer: S.Deo (Jabalpur)

MSC:

55N35 Other homology theories in algebraic topology
03E70 Nonclassical and second-order set theories

Keywords:

Alternative Set Theory; Eilenberg-Steenrod axioms; AST; indiscernibility relations

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