

Gunnarsson, Thomas; Staffeldt, Ross

Segal operations in the algebraic K -theory of topological spaces. (English) Zbl 1412.19002
Ann. K-Theory 4, No. 1, 1-56 (2019).

In this paper, the authors extend previous work of *F. Waldhausen* [Lect. Notes Math. 967, 390–409 (1982; [Zbl 0512.55006](#))] which in turn was based in earlier work by *G. Segal* [in: New developments in topology. Cambridge: University Press (1974; [Zbl 0274.55016](#))]. Waldhausen adapted a construction by Segal to define operations on the algebraic K -theory of the one-point space, $\theta^n : A(*) \rightarrow A(B\Sigma_n)$, where Σ_n is the symmetric group and $B\Sigma_n$ its classifying space. Now, for any connected simplicial abelian group, the authors define operations $\theta^n : A(X) \rightarrow A(X \times B\Sigma_n)$ in the algebraic K -theory of spaces and they show that they can be given the structure of E_∞ -maps and other more technical algebraic property than the third one satisfied by Waldhausen's operations. Also, by considering the Σ_n -transfer $\phi_n : A(X \times B\Sigma_n) \rightarrow A(X \times E\Sigma_n) \simeq A(X)$, they develop an inductive procedure to compute the compositions $\phi_n \cdot \theta^n$ and, at the end of the introduction, they conclude with some comments on applications.

Reviewer: [Antonio R. Garzón \(Granada\)](#)

MSC:

[19D10](#) Algebraic K -theory of spaces
[19D23](#) Symmetric monoidal categories

Keywords:

algebraic K -theory of topological spaces; Segal operations; operations

Full Text: [DOI](#) [arXiv](#)

References:

- [1] [10.2307/2046209](#) · [Zbl 0613.55006](#) · [doi:10.2307/2046209](#)
- [2] [10.1007/BF00533371](#) · [Zbl 0701.18007](#) · [doi:10.1007/BF00533371](#)
- [3] [10.1112/jtopol/jtm012](#) · [Zbl 1145.19001](#) · [doi:10.1112/jtopol/jtm012](#)
- [4] [10.1016/S0022-4049\(02\)00049-X](#) · [Zbl 1027.19003](#) · [doi:10.1016/S0022-4049\(02\)00049-X](#)
- [5] [10.1016/0022-4049\(92\)90053-I](#) · [Zbl 0757.19003](#) · [doi:10.1016/0022-4049\(92\)90053-I](#)
- [6] [10.1090/S0002-9939-08-09293-9](#) · [Zbl 1147.19003](#) · [doi:10.1090/S0002-9939-08-09293-9](#)
- [7] ; Laplaza, Coherence in categories. *Lecture Notes in Math.*, 281, 29 (1972)
- [8] [10.1090/surv/132](#) · [doi:10.1090/surv/132](#)
- [9] [10.1016/0040-9383\(74\)90022-6](#) · [Zbl 0284.55016](#) · [doi:10.1016/0040-9383\(74\)90022-6](#)
- [10] ; Segal, New developments in topology. *London Math Soc. Lecture Note Ser.*, 11, 105 (1974)
- [11] [10.1017/S0305004100055535](#) · [Zbl 0392.18001](#) · [doi:10.1017/S0305004100055535](#)
- [12] ; Waldhausen, Algebraic K -theory, Part II. *Lecture Notes in Math.*, 967, 390 (1982)
- [13] [10.1007/BFb0074449](#) · [doi:10.1007/BFb0074449](#)
- [14] ; Waldhausen, Algebraic topology and algebraic K -theory. *Ann. of Math. Stud.*, 113, 392 (1987) · [Zbl 0708.19001](#)
- [15] [10.1515/9781400846528](#) · [Zbl 1309.57001](#) · [doi:10.1515/9781400846528](#)

This reference list is based on information provided by the publisher or from digital mathematics libraries. Its items are heuristically matched to zbMATH identifiers and may contain data conversion errors. It attempts to reflect the references listed in the original paper as accurately as possible without claiming the completeness or perfect precision of the matching.