Weibel, Charles A.

Homotopy algebraic K-theory. (English) Zbl 0669.18007

Algebraic K-theory and algebraic number theory, Proc. Semin., Honolulu/Hawaii 1987, Contemp. Math. 83, 461-488 (1989).

[For the entire collection see Zbl 0655.00010.]

The author constructs a version KH_* of algebraic K-theory of associative rings and schemes which is homotopy invariant, i.e. satisfies $KH_*(A) = KH_*(A[t])$. For regular rings or schemes KH_*-theory is the same as K_*-theory, and under K_0-regularity KH_*-theory coincides with the KV_*-theory of Karoubi-Villamayor. KH_*-theory has many nice properies, including the validity of the Fundamental Theorem, excision and the existence of localization sequences - even without the usual assumptions on non-zero divisors. As a major application (due to Bob Thomason) the Brown-Gersten spectral sequence for quasi-projective spaces is deduced from the Mayer-Vietoris properties in KH_*-theory.

Reviewer: M.Kolster

MSC:

18F25 Algebraic K-theory and L-theory (category-theoretic aspects)
16E20 Grothendieck groups, K-theory, etc.

Keywords:

homotopy invariance; algebraic K-theory of associative rings and schemes; localization sequences; spectral sequence