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K_3 of a field and the Bloch group. (English. Russian original) Zbl 0741.19005

Proc. Steklov Inst. Math. **183**, 217-239 (1991); translation from *Tr. Mat. Inst. Steklova* **183**, 180-199 (1990).

The author gives an exposition of his results, which were got mostly around 1982. The main problem is the computation of $K_3(F)_{nd} = \text{Coker}(K_3^M(F) \rightarrow K_3(F))$, where F is an infinite field, $K^M(F)$ is the Milnor K -group and $K(F)$ is the Quillen K -group. The result is given in terms of the Bloch group $B(F)$ describing the non-trivial relations between tensor elements $x \otimes (1-x)$ in $F^* \otimes F^*$. It is proved that there is an exact sequence

$$0 \rightarrow \widetilde{Tor}(F^*, F^*) \rightarrow K_3(F)_{nd} \rightarrow B(F) \rightarrow 0,$$

where $\widetilde{Tor}(F^*, F^*)$ is the unique nontrivial extension of $Tor(F^*, F^*)$ by $\mathbb{Z}/2$.

Reviewer: [A.N.Parshin \(Moskva\)](#)

MSC:

[19D45](#) Higher symbols, Milnor K -theory

[11R70](#) K -theory of global fields

[19D55](#) K -theory and homology; cyclic homology and cohomology

Cited in **5** Reviews

Cited in **37** Documents

Keywords:

[Milnor \$K\$ -group](#); [Quillen \$K\$ -group](#); [Bloch group](#)