Let Ω be a set of all orderings of the real field F. There is the following natural homomorphism $\psi : {}_2\mathrm{Br}(F) \to \prod_{\alpha\in\Omega} {}_2\mathrm{Br}(F_\alpha)$, where F_α is the real closure of F with respect to an ordering α and ${}_2\mathrm{Br}(F)$, ${}_2\mathrm{Br}(F_\alpha)$ are 2-torsion parts of the Brauer groups of F and F_α respectively. An algebra A representing a nontrivial element of the kernel of ψ is called an Ω-algebra. The local Pfister conjecture looks as follows: the index of any Ω-algebra over $\mathbb{R}((t))(x)$ equals to 2. The following result is obtained.

Let $f_1, f_2 \in \mathbb{R}((t))[x]$ be monic irreducible polynomials which are sums of two squares, $\deg f_1, \deg f_2 > 0$. Then there exists a quaternion Ω-algebra with ramification only at f_1 and f_2.

References.

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