

# DIVISION ALGEBRAS OF PRIME DEGREE WITH INFINITE GENUS

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The genus  $\mathbf{gen}(D)$  of a finite-dimensional central division algebra  $D$  over a field  $F$  is defined as the collection of classes  $[D'] \in Br(F)$ , where  $D'$  is a central division  $F$ -algebra having the same maximal subfields as  $D$ . In [1], it is shown that there are quaternion algebras with infinite genus. Besides, it is proved that there exists a field  $F$  over which there are infinitely many nonisomorphic quaternion algebras with center  $F$ , and any two quaternion division algebras with center  $F$  have the same genus. In [2], we generalize the results from [1] to the case of division algebras of any prime degree. More precisely, for any prime  $p$ , we construct a division algebra of degree  $p$  with infinite genus. Moreover, we show that there exists a field  $K$  such that there are infinitely many nonisomorphic central division  $K$ -algebras of degree  $p$ , and any two such algebras have the same genus.

## References

1. Meyer J.S. Division algebras with infinite genus // Bull. London Math. Soc. 2014. V. 46. No. 3. P. 463–468.
3. Tikhonov S.V. Division algebras of prime degree with infinite genus // Preprint [arXiv:1407.5041](https://arxiv.org/abs/1407.5041).