

Orevkov, Stepan Yu.

Riemann existence theorem and construction of real algebraic curves. (English)

Zbl 1078.14083

Ann. Fac. Sci. Toulouse, VI. Sér., Math. 12, No. 4, 517-531 (2003).

Using the Riemann existence theorem, the author shows the existence of certain real rational maps f that are of the form D/q^2 , where $D = 4p^3 + 27q^2$. The author then studies the topology of the real algebraic curve defined by the equation $y^3 + p(x)y + q(x) = 0$, and proves the existence of some new topological types of real algebraic curves on real Hirzebruch surfaces.

Reviewer: [Johannes Huisman \(Brest\)](#)

MSC:

14P05 Real algebraic sets

Cited in **2** Reviews
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References:

- [1] Birch (B.J.), Chowla (S.), Hall (M.), JR., Schinzel (A.), On the difference $x^3 - y^2$, Norske Vid. Selsk. Forh. (Trondheim) 38 , p. 65 - 69 (1965). MR 186620 | Zbl 0144.03901 · [Zbl 0144.03901](#)
- [2] Davenport (H.), On $f_3(t) - g_2(t)$, Norske Vid. Selsk. Forh. (Trondheim) 38 , p. 86 - 87 (1965). MR 186621 | Zbl 0136.25204 · [Zbl 0136.25204](#)
- [3] Fied;er-Le Touzé (S.), Orientations complexes des courbes algébriques réelles , Thèse doctorale, Univ. Rennes - 1 (2000).
- [4] Florens (V.), Estimation du genre slice d'un entrelacs, applications aux courbes algébriques réelles , Thèse doctorale, Univ. Paul Sabatier , Toulouse (2001).
- [5] Korchagin (A.B.), Construction of new M-curves of 9th degree , Lect. Notes. Math 1524 , p. 296 - 306 (1991). MR 1226261 | Zbl 0785.14033 · [Zbl 0785.14033](#)
- [6] Korchagin (A.B.), Smoothing of 6-fold singular points and constructions of 9th degree M-curves , Amer. Math. Soc. Transl. (2) 173 , p. 141 - 155 (1996). MR 1384314 | Zbl 0858.14029 · [Zbl 0858.14029](#)
- [7] Orevkov (S.Yu.), Link theory and oval arrangements of real algebraic curves , Topology 38 , p. 779 - 810 (1999). MR 1679799 | Zbl 0923.14032 · [Zbl 0923.14032](#) · [doi:10.1016/S0040-9383\(98\)00021-4](#)
- [8] Orevkov (S.Yu.), A new affine M-sextic , Funct. Anal. and Appl. 32 , (1998) p. 141 - 143 ; II. Russ. Math. Surv. 53 , p. 1099 - 1101 (1999). MR 1647852 | Zbl 0932.14035 · [Zbl 0932.14035](#) · [doi:10.1007/BF02482602](#)
- [9] Orevkov (S.Yu.), Complex orientations of M-curves of degree 7 , in Topology, Ergodic Theory, Real Algebraic Geometry . Rokhlin's Memorial, Amer. Math. Soc. Transl. ser 2 202 , p. 215 - 227 . MR 1819190 | Zbl 0993.14021 · [Zbl 0993.14021](#)
- [10] Orevkov (S.Yu.), Quasipositivity test via unitary representations of braid groups and its applications to real algebraic curves , J. Knot Theory and Ramifications 10 , p. 1005 - 1023 (2001). MR 1867106 | Zbl 1030.20026 · [Zbl 1030.20026](#) · [doi:10.1142/S0218216501001311](#)
- [11] Stothers (W.W.), Polynomial identities and Hauptmodul , Quart. J. Math (2) 32 , p. 349 - 370 (1981). MR 625647 | Zbl 0466.12011 · [Zbl 0466.12011](#) · [doi:10.1093/qmath/32.3.349](#)
- [12] Viro (O. Ya.), Progress in the topology of real algebraic varieties over the last six years , Russian Math. Surveys 41 , p. 55 - 82 (1986). MR 854239 | Zbl 0619.14015 · [Zbl 0619.14015](#) · [doi:10.1070/RM1986v041n03ABEH003317](#)
- [13] Viro (O. Ya.), Real algebraic plane curves: constructions with controlled topology , Leningrad J. Math. 1 , p. 1059 - 1134 (1990). MR 1036837 | Zbl 0732.14026 · [Zbl 0732.14026](#)
- [14] Zannier (U.), On Davenport's bound for the degree of $f_3 - g_2$ and Riemann's existence theorem , Acta Arithm. 71 , p. 107 - 137 (1995); Addenda, *ibid.* 74 p. 387 (1996). Article | MR 1339121 | Zbl 0840.11015 · [Zbl 0840.11015](#)

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